VOL. I. No. 7.

The Course of Study

A MONTHLY PUBLICATION FOR TEACHERS AND PARENTS

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EXPRESSION IN HISTORY
See Miss Rice's article, page 612

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CHICAGO

THE LITTLE CHRONICLE'S MAP SU

Vol. 2, No. 22 THE LITTLE CHRONICLE, Dyche Building, St

1—WASHINGTON: Conditions to be made if independence is granted to Cuba. Admiral Sampson objected to promotion of gunner to ensign, on social grounds. Department of State negotiating with Russia to end tariff war. Newest statistics place United States at head of exporting nations. 3—CHICAGO: Superintendents' section of Nat. Ed. Assn. voted down proposition to appropriate money to reform spelling of English words. 2—CAMBRIDGE, MASS.: Famous pump on Harvard campus blown up by bomb after 70 years' service. 4—ATHENS: Powers refused to allow Greece to annex the Island of Crete. 5—BERLIN: Census shows 56,345,014 population of German Empire. Emperor William and King Edward of England visited Empress Frederick, who is seriously ill at Cronberg. 6—OMAHA: Two Cudahy suspects arrested. Pat Crowe declared his innocence in letter and offered to give himself up. 7—LON[DON]: Treaty. Irish members obstruct[ed] blizzard raging in Southern Ru[ssia] delegates. Defiance of the [Tsar]. Uruguayan consuls charged wit[h] of flags to celebrate Washington['s] of Rio de Janeiro, from Hong K[ong] 133 perished. 12—SYDNEY: Se[ven] to 24. 13—PRETORIA: Lord M[il]beestefontein. Gen. French pur[sued] blew up culvert and looted mill[ions]

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...binet discussing Hay-Pauncefote ... Parliament. 8—ODESSA: Fierce ...A: Cuban constitution signed by ...owing. 10—MANILA: Italian and ...rgents. Natives buy $25,000 worth ...—SAN FRANCISCO: Steamer City ...n Fort Point Ledge, Golden Gate: ...wrecked in hurricanes, February 22 ...small victory over Boers at Harte... ...in East Transvaal. Gen. Delarey ...near Johannesburg. 14—ALGIERS: French troops put down local disorder among Algerians. 15—CARACAS: Revolution in Venezuela growing; several British steamers destroyed. Newspapers make bitter attack on Americans. 16—PEKIN: Minister Conger granted sixty days leave of absence. W. W. Rockhill acting ambassador. Boxer leaders punished. Waldersee's expedition against Singan Fu abandoned. 17—MADRID: Order restored temporarily. 18—SAMOAN ISLANDS: Gold reported found in black sand deposit on Upola. 19—CAPE TOWN: De Wet and Steyn escaped British cordon; their forces reported broken up. Gen. Hertzog attacked the town of Richmond, Central Cape Colony. Relief sent to garrison. 20—MOMBASA: British force attacked and 17 killed by Somali negroes.

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VOL. I. MARCH, 1901. No. 7.

THE COURSE OF STUDY

A PUBLICATION FOR TEACHERS AND PARENTS

ISSUED MONTHLY—TEN NUMBERS A YEAR.

Morning Exercises

Francis W. Parker

In class and grade, like ages and stages of growth, similar tendencies, desires, and interests make it possible for the teachers to organize the little communities into a beautiful life, the basis of which is co-operation and help. In the morning exercises all the good things of class and grade may be poured into the larger life of the whole school. Some one has said that "togetherness" is the motto of the new century. The morning exercises mean "togetherness." Here the tots of the kindergarten, the pupils of the elementary school, the students of the secondary and pedagogic schools, and the faculty mingle in a happy and profitable twenty minutes. Every one either takes an active part or is ready to help when aid is needed.

Subjects for Morning Exercises: Every subject presented to the assembled society should grow out — be in fact the efflorescence — of the life in class and grade. Nothing should be in any way extraneous to the intrinsic movement of the school. There must be no attempt at show or mere exhibition.

Days: The great days of the past should be remembered; great events, birthdays of great men and women, whose spirit should permeate and guide the school. For instance, the lives of Washington and Lincoln should bring into the children's hearts with renewing power the wisdom, love, patience, and world patriotism of the two great Americans. Bunker Hill and Lexington should show the value of unity in a holy cause. All history should make us feel deeply how much of blood and sacrifice we cost. Shall we be worth what we cost?

Celebrations Common to the Entire Human Race: THANKSGIVING should bring the school into one beautiful and highly significant phase of human life, a phase common to the savage and the civilized. Not the Pilgrims alone were thankful to God for his beneficent gifts. All mankind throughout the ages have expressed gratitude for the bounties of heaven. The child should enter into the past through concrete illustrations, through dramatic and pictorial art. He should bring his offering of thanks in the same spirit, broadened with enlightenment, in which the savages, barbarians, and civilized have always celebrated Thanksgiving

CHRISTMAS. Every child is a type of the Babe of Bethlehem. The story of the Wise Men from the East teaches a universal truth and duty. All the riches, the progress, the good, are laid at the feet of the little child, with the prayer that every little one may be imbued with the same love for mankind that wrought righteousness through the soul of the Master.

EASTER. The resurrection from the seeming death of winter, the new life, the continued miracle of spring, have kept the flame of love of God in pagan and Christian alike. The resurrection of the Saviour

embodies the deepest desire of man, and symbolizes a continuous new life within the reach of every human being.

MEMORIAL DAY. Here again we may sum up the cost, count in a measure the price of human liberty, and look forward to the "unfinished task."

Nature Study: It is our purpose to keep the school in close touch with the "rolling year," to fill the children with a warm feeling for nature as it changes. The results of field excursions and laboratory investigations should come into the morning exercises by description and pictorial art. The whole school should be brought into the closest sympathy with the experiences of every class and every child.

Very important discoveries in science, and their discoverers, should come into the assembled life of the school. The same may be said of world-changing inventions and their inventors.

Current History: No greater mistake is made in education than the teaching of past history at the expense of the present. The telegraph, newspaper, and magazine are bringing us every day news from South Africa, China, the Philippines, Cuba, Venezuela, and from all quarters of the globe. Some of this daily history of the world is epoch-making, and its causes reach back to the remote past. Interest in the present state awakens interest in the causes of present conditions, giving life to that which might be dry and easily forgotten. Every teacher should incidentally teach present history. Once a week, at least, the most important events should be presented to the whole school. Time might be given for any one to tell a bit of news out of the regular order. Children would thus be induced to read the best in the newspapers.

Maps: Current history should always be closely correlated with geography. A large chalk-modeled map of the world should be above the platform of the assembly hall for continual reference. Blackboard maps of the countries in question should be drawn.

The Arts: A morning now and then should be devoted to music, another to pictorial art. Indeed all morning exercises should have music, painting, and drawing intermingled for illustrations and incentives.

Health: Good, sound, robust physical life should have its morning, illustrated by gymnastics.

Preparation: I have said that the morning exercises should spring from the work of the school, representing every class and grade from the kindergarten to the twelfth grade inclusive. All preparation should be made with care and deliberation; nothing should be done hurriedly. All the preparation should be in the best literary and art forms. The morning exercises may be made the best period educationally of the day. Culminations of a series of lessons in any subject may be presented; for instance, in history, Bunker Hill, or Gettysburg.

Opportunities: The morning exercises furnish the best opportunities for practice in extemporaneous speaking. The reading of manuscripts or selections should be the rare exceptions, and not the rule. Students should epitomize historical events or other statements, and present them in their own language. Extemporaneous speaking demands far more careful preparation than do writing and reading of manuscript.

Elocution: Gems of literature form a substantial part of the exercises. They should be brief, carefully selected, and prepared by practice. The duty of the speaker or reader is to make everybody in the hall understand what is said.

The morning exercises also offer opportunity for self-control and respectful, sympathetic attention.

The Plan: The morning exercises are

held at 10:40 o'clock, thus breaking pleasantly the work of a long session. Each member of the faculty is assigned a morning far enough in advance to admit of making complete preparation. The leader should select for the morning reading something brief and correlated. The selection should be the best poetry, with an occasional bit of prose. The selection should be inspiring, and not merely descriptive. The Bible may be freely used for its magnificent poetry and prose, and also its divine lessons.

Marching: Owing to the shortness of the morning exercise period, economy of time is necessary. In order that not a minute may be lost, the pupils in the different classes march to the assembly hall. At three strokes of the bell they cease work or play, and quickly form in line. At another stroke of the bell they march, without command from the teachers, each class led by a marshal. At the close of the exercises the classes march back to their rooms. Besides saving time, marching promotes orderliness and self-control, and makes it possible for the whole school to leave the building without accident in case of fire. To make the marching effective the pupils observe these rules:

KEEP STEP.
KEEP YOUR DISTANCE.
KEEP YOUR CHEST UP.
KEEP YOUR MOUTH SHUT.

The Faculty: Every member of the faculty should take an active, sympathetic part in the morning exercises. They should be promptly on hand with the classes. At any time there is opportunity to put in the right word in the right place, they should encourage the school to individual action by appropriate quotations or suggestions. The members of the faculty can come in strongly when there is any lull in the interest, or any gap in the exercises.

The Results: The effects of morning exercises should be promptly used in class and grade for the promotion of character and community life.

Plant Devices

Wilbur S. Jackman

It is interesting to observe that no matter how different the societies to which they belong may be, all plants have precisely the same life problem to solve. They do this by utilizing the same things and by employing practically the same means. That is to say, the plant in any environment establishes itself and preserves itself through relationships which it maintains between itself and the sunshine (light and heat), moisture, and the mineral world. These relationships are brought about by certain exposures which the plant is able to make to the impinging forces, and its adaptations to extremely diverse environments are but the measures of such exposures.

In maintaining its different relationships, a primary question with the plant is that of its physical support. In the aquatic societies this problem is reduced to the minimum on account of the buoyancy of the water. The specific gravity of the plant, in certain instances diminished by vesicles, relieves the stem of the responsibility of support, and almost the whole plant becomes devoted to the question of exposure to light. The moisture relation of such plants is so simple, also,

that special structures or exposures are scarcely needed.

With the water plants that become anchored in the mud at the bottom, such as bulrushes, the life problem becomes decidedly more difficult. There are now three exposures—one to the soil, another aquatic, and a third aërial. In our zone the difficulty of the problem is much enhanced by the extremes of temperature which affect so differently the three media, earth, water, and air. The part of the plant exposed to the air is subjected to the greatest extremes; that part exposed to the water to considerable variation within narrower limits, while the bottom mud offers heat conditions that are fairly stable. The plant's mode of meeting or evading the difficulties is most ingenious. In the first place it keeps its stem under water, and as a result it is buried in the debris at the bottom and becomes an underground stem. Next, to secure its light exposure it sends to the surface, and above it frequently, stem-like leaves which are stiff enough to support themselves when they are above the surface. In other instances, as with the water lilies, where there is a spread of leaf area, the blade lies on the surface, which much simplifies the problem of support. When the food-making season is over, these plants find it most expedient to sever those relations with the outside world which have been established through the leaves. They find it easiest to drop the structures which have maintained these relations, and to preserve the soil exposure alone as presenting the most stable, hence the most favorable, heat conditions. Incidentally, the difference in the mechanics of the various stem-like leaf structures of such plants as the bulrushes, water lilies, and flags renders a different water exposure possible for each — the first named being the advance, and the last the rear guard of the rooting plant procession toward the deep water.

On the shore, where the supporting power of the water is absent, in order to secure an extended light relation, most plants resort to the device of the upright stem, upon which, in an almost infinite variety of ways, the leaves are spread. This device now becomes possible, because the more solid ground affords a fair anchorage by means of the roots. These plants have gained much in their relations to light, but they have lost something, too. They are exposed to the sudden changes and the wide extremes of temperature to which the air is subject. Unprotected by water, the surface soil becomes subject to extremes almost equally great, and hence many of these plants give up every structure offering exposure, and trust the future to the seed, which, physiologically, has no more of an exposure than the underground stem at the bottom of the pond. In addition to their mechanical function, the roots are now the chief exposure by which the plant establishes its water relation; hence they are relatively more numerous and more widely spread.

On the drier ground, the competition among plants in extending their light exposure becomes intense. To that end great stems with spreading branches are shot up higher and higher. This is made possible by the fact that the dry ground affords a firm anchorage. The increasing height is made possible through the stiffening of the stems, partly by the mineral matter which is gradually deposited by the processes of growth. The water relation in dry ground presents a serious problem. To meet it the roots undergo indefinite division, and are sent out singly and in clusters far and wide to take up every drop of available moisture. Even the good offices of the leaves are enlisted. They, in some instances, funnel the rain and dew down the stem to the roots, and in others shed it off like a roof to the periphery of the root sphere.

where there are the most delicate root-tips. This increased spread of root makes it mechanically possible, too, for the plant to carry its light exposure to positions of greater advantage. Many of such plants, the trees and shrubs, have found the habits of the marsh and water plants, that give up most of their structures at the close of the growing season, most extravagant. The former have learned how to protect the essential part of those structures through which the plants make their different exposures. This means an immense advantage to the plant in added possibilities of growth.

As the drier portions of the earth are encountered, the light remaining essentially the same, the plants turn their attention more and more to the solution of the water question. The trees in the great forest areas of the globe can do with nothing less than oceans of rainfall; but many members of the grass tribe, by a most ingenious leaf device and a prolific root development, can thrive where dews almost take the place of rain. In still drier regions the thin spreading leaf structures are abandoned, and the responsibility of maintaining both the light and water relation is assumed by the stem, as in the cactus, where the whole plant becomes a kind of reservoir. Thus it has been, by infinite pliability and patience, that the plants have persisted through millions of years, developing, growing, and spreading until there is scarcely a square foot on the globe that has not been occupied by them.

Spring Studies

Ira B. Meyers

Tree Growth: Relation to Form Structure and Wood Properties

From the first awakening of life in germination through all its life stages to old age and decay, the tree is subject to the varying influences of heat, light, moisture, soil, winds, animal life, and other plants. The total of these external influences is called the tree's environment. The living tree must adjust itself to the constant and varying influences of its environment. To assist it in its adjustment it has certain structures or organs which develop in form and arrangements according to their function and the nature of the tree environment.

Our study of the tree should help us to understand something of the function of its various structures, and how these functions are performed.

It should tell us why one tree is tall and another spreading; why one has an oval and another a conical top; why one tree leaves before it flowers and another flowers before it leaves. Our observations should help us to discover why so many seeds germinate and so few mature; they should enable us to find out from these silent objects their reasons for living and growing as they do.

To do this, we must find out the needs of the tree, and how it supplies these needs in sufficient quantities for living.

I. General Observations.

1. Outline form of unfoliaged trees. (a) Top. (b) Trunk.

2. Variation of form in trees of the same variety. (a) Isolated. (b) Woodland.

3. Variation of form in trees of different species.

4. Try to determine conditions and adaptations which influence tree form.

5. Make drawings showing characteristic forms.

6. What growths determine form?

7. Consider: (a) Form of trunk. (b) Length of branches. (c) Spread of branches. (d) Angle of branches.

8. What is the nature of a growth producing straight branches? Zigzag branches?

II. Twigs and Bark.

1. Note ring-like markings at intervals on twigs. These rings mark the yearly growth of the twig.

2. Compare the lengths of these growths. (a) On different branches of the same tree. (b) On different trees of the same kind. (c) On different trees of different species.

3. Can you tell by the appearance of a tree's top whether annual growth is slow or rapid?

4. How many annual growths can you distinguish on the same twig? (a) Do these growths vary in length? (b) What conditions would cause variation?

5. Do you identify any of the trees by their bark?

6. Make drawings of characteristic barks.

7. What seems to be the function of bark?

8. How do you account for its varied character?

9. Examine twigs for small dots (lenticels). Do these lenticels affect the nature of splitting or peeling of old bark?

III. Trunk Growth.

1. How does a tree increase its circumference? Its height?

2. What part of the trunk is of last year's growth?

3. In what parts of the tree will growth take place this season?

4. What relation as to position will this year's growth bear to that of last year?

5. What markings result from these yearly growths?

6. What relation as to number would the rings at the butt of a tree bear to those ten feet up?

7. How do you account for the height from the ground of the first branches on trees? (These are frequently forty feet up.)

8. Is the heart-wood (duramen) necessary to growth? Proof?

9. The sap-wood (alburnum)? Proof.

IV. Lumber.

1. Try to identify the woods used in house-finishing, furniture, carriage construction, etc.

2. What determines the choice of woods for these various purposes?

3. Make comparative strength tests of various woods. (See Jackman, *Nature Study for Grammar Grades*, p. 275.)

4. Note the various natural grains of woods.

5. Can you determine the trunk markings that determine this grain?

6. Examine cross and longitudinal sections of trees.

7. Show by drawing the position that the various grained woods must have occupied in the log.

8. Can a sawyer tell the style of grain possible before sawing the log?

V. Materials Available for Wood Study.

1. Trees of parks.

2. Cross and longitudinal sections of trees.

3. Hough's *American Woods* (library).

4. Stereopticon slides of wood sections; also microscopic slides for study of structure.

5. Stereopticon slides on lumber industry and forest trees.

References: U. S. Dept. Agriculture, Bulletin No. 10, Division of Forestry, *Timber;* Bulletin No. 24, *A Primer of Forestry.*

Notes on Birds

The few birds of winter and early spring are no less interesting than the greater numbers of summer. The presence of these birds indicates that their food is available during the winter months. It may be generally stated that the presence or absence of birds, their places of living, their structures and habits, are influenced more by their food than by any other factor. If you would understand the meaning of bird ways, find out their places and habits of feeding.

The limited food supply and their small number give an excellent opportunity to know our winter and early spring birds.

In observing birds, try to acquire the habit of noting their shape and size, prevailing color, color marks on head, wing, throat, and tail; where the bird was seen—tree trunk, branches, on ground, meadow, woods, swamp, or shore; what it was doing when seen; characteristic movements; its song or call.

The following birds are found in the vicinity of Chicago during early March

English sparrow; snow-bird (slate-colored junco), found in meadows, wastes, vacant lots and seed patches; tree-sparrow, frequently seen with the juncos; thistle-bird (wild-canary, gold finch), prairie wastes, seed thickets; horned lark, prairie, or frequently found walking in roadways; black-capped chickadee, wooded thickets, parks, etc.; blue jay; white-bellied nuthatch, on tree trunks, frequently with head downward, a conspicuous acrobat; downy woodpecker, on trunk and limbs of trees, frequently inspecting cocoons; gulls, lake front, our great water scavengers; butcher-bird (northern shrike); crow; yellow-bellied woodpecker; brown-creeper, running up trunks of trees, seldom going higher than the first branches, etc.

In addition to the interest we may have in the life habits of birds, is their influence on plant and other animal life through their food relations. The snow-bird and tree-sparrow feed entirely upon seeds of weeds during winter. Professor Beal has estimated that each of these birds consumes about one-quarter of an ounce of seeds daily, and that in a single state (Iowa) they destroy 1,750,000 pounds or 875 tons of weed seeds annually.

The spring arrival of new birds generally indicates that a new food is available. The geese and ducks begin to fly as soon as the ice breaks on ponds and streams. They have access to the food on the bottom. The robin appears as soon as the ground thaws sufficiently for the earthworm to come to the surface.

I. Observation.

1. Make a list of the birds you see during the first week of March.

2. Add to the list the later arrivals with date.

3. Try to find out the nature of the food taken by these various birds. The time of year during which the food is available.

4. Was the food available in any quantity before you saw the bird?

5. Do birds have any special modification of bill, feet, wings, or tail to assist them in securing their food?

6. Make drawings of the bills and feet of birds showing various modifications and the special function of each.

7. What birds do you recognize by their flight? By their call or song?

8. During the month watch for wild geese and ducks. Can you tell them apart by their flight-formations? By their calls?

II. Special Field Study.

1. Sketch typical meadow, woodland, water areas, etc., and note the birds living and feeding in these areas.

2. To what extent do their habits and structures give them special advantage in the area they inhabit? (a) Discovering and prehending their food. (b) Escaping enemies. (c) Nesting and rearing young.

III. Birds likely to arrive during March: golden-crowned kinglet, purple martin, rusty blackbird, killdeer, song sparrow, fox sparrow, red-winged blackbird, bluebird, bronzed grackle, cowbird, flicker, phœbe, ruby-crowned kinglet, hermit thrush, meadow lark.

References: Year Book, Department of Agriculture, 1898, *Birds as Weed-Destroyers;* Farmers' Bulletin, No. 54, *Some Common Birds;* Thompson, *Wild Animals: Calls and Feeding of Crows, Silverspot* (p. 59), *Winter Ways, Redruff* (pp. 330 and 346); Chapman, *Hand-book for Study of Birds, Bird Life;* Wright, *Birdcraft.*

Art

John Duncan

The subjects of the accompanying cuts, which are made from drawings done by students of the Pedagogic School, have been chosen to illustrate the most primitive form of hunter life. (See outline by Miss Rice, page 612.) The drawings have been edited, to some extent, and simplified to meet the exigencies of printing.

Figures 1 and 2 indicate the arboreal habits of our far-back ancestors, with whom arms and legs shared the offices of prehension and locomotion. Some attempt has been made to render the aspect of these people—the long, strong arms, the short legs and in-turned prehensile feet, the flat nose, the powerful jaws. The outcome is not pleasing, but it brings out by a process of inversion the comparative beauty of the modern face, and makes for the development of the love of beauty. Beauty of face and of person is seen to be the result of the intellectual progress, the improvement of the arts, and the moral uplifting of civilization, and not, as is so often believed, a mere happening without reason or relation.

Figures 3, 4, and 5 show man aggressive, in pursuit of food, and using the rudest weapons; Figure 3, casting stones from an overhanging bank upon the beast beneath; Figure 4, wielding a rude stone hammer; and Figure 5, using the bow and arrow.

Figures 6, 7, and 8 illustrate the occupations in the home; Figure 6, the making of fire with the fire-drill; Figure 7, cooking with the spit; and Figure 8, the chipping of flint implements.

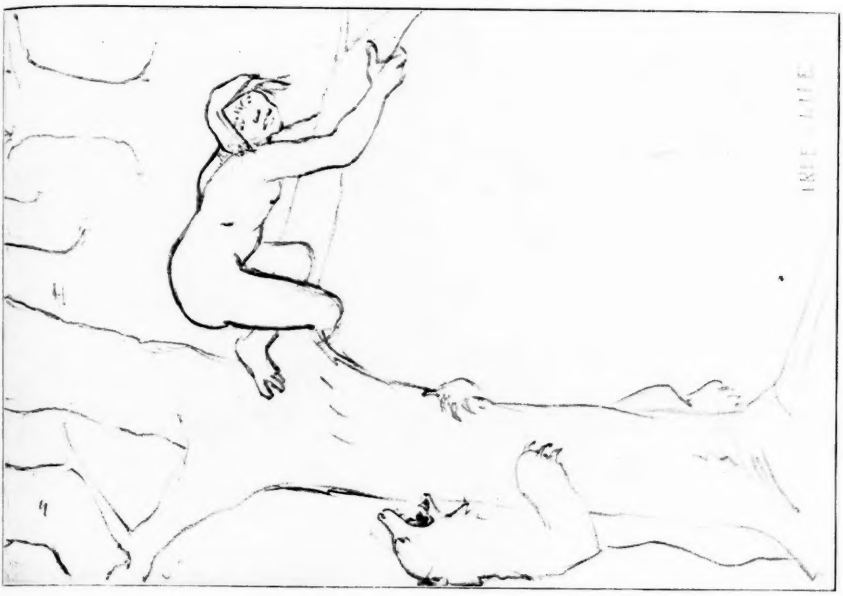
Of course the drawings printed do not represent a tithe of those actually produced. The students worked individually, and each expressed her own conception of the arts and conditions of that life, incorporating in the drawings the results of her own study and observation in the library and museum.

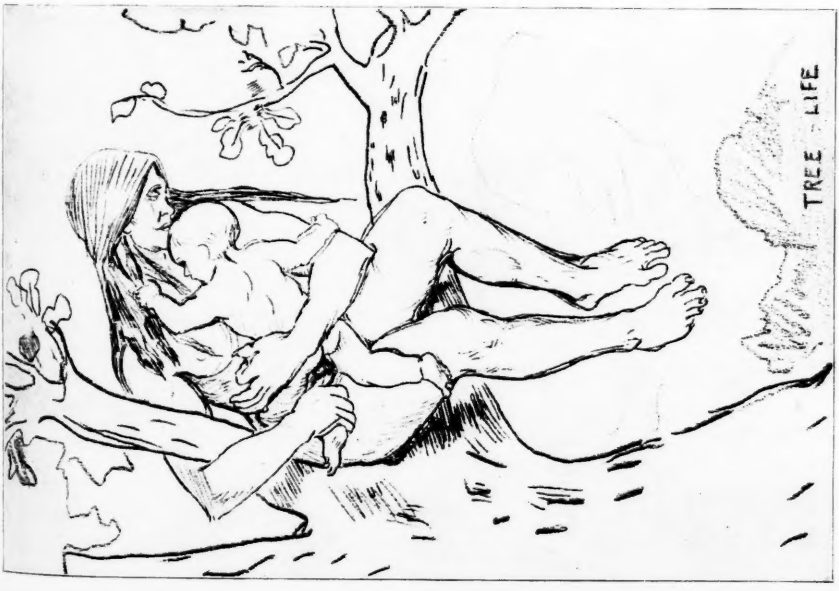
We would have the students take up this matter of illustration seriously. The collation of drawings would issue in picture-books, presenting history in the most vivid way, appealing directly to the eye. All might work together in the prehension and digestion of material, the more skillful leading the way, the drawings being passed through a process of successive editing.

During this month we shall go on to epitomize the life of the early shepherd in the same summary manner, using clay instead of chalk and pencil, modeling statuettes and low reliefs, enhanced and reinforced in some cases with color.

Pottery: The students of the first-year training class are at work upon their pottery, and the painting and glazing of their ware will occupy part of the month.

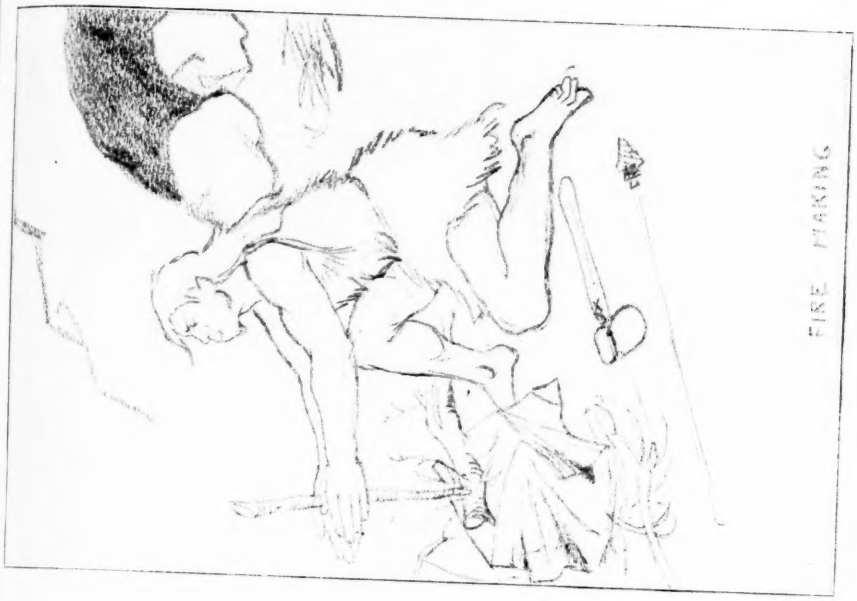
Painting from Nature (correlated with nature study) will alternate with the modeling. The students will try to express in this work the appearance of the day. Walking in the park, we will study the details of the scene, noting the characters of the trees as we go along, the appearance of the sky, the moisture or frost, and then retiring to the Academy of Science, from the windows of which we command an extensive view of the park, we shall proceed to make our pictures. These may be copied from the scene immediately before us, or built up imaginatively from the observations we have made in our peregrinations on the way thither.



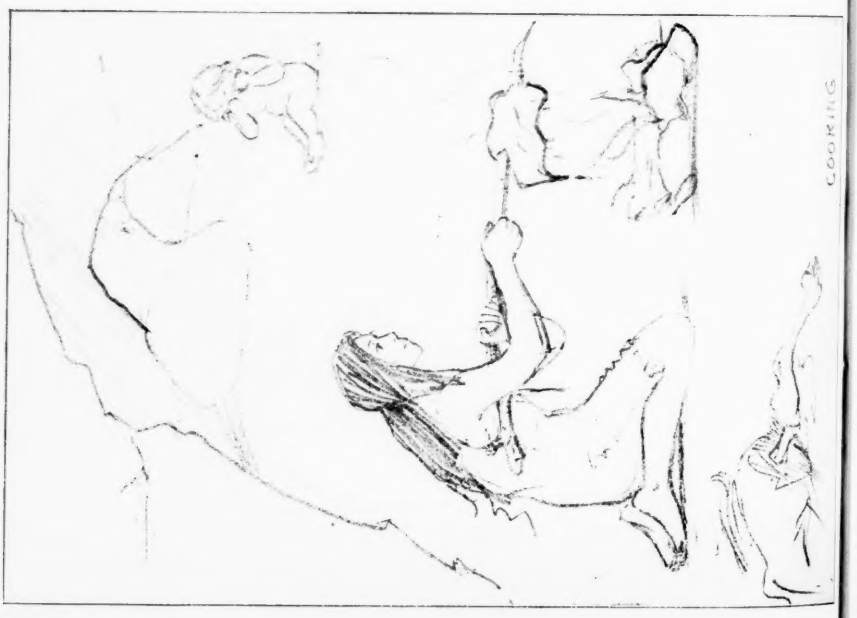

TREE - LIFE

STONE HAMMER

STONE THROWING


FIRE MAKING

BOW AND ARROWS


COOKING

Political Geography

Zonia Baber

The relative value of "human and natural geography" in the elementary schools is now attracting the attention of many educators.

Whichever aspect of the subject takes precedence, its presentation is wholly a matter of the method of the teacher, for the final result must be the same. If one begins with a study of the people, a knowledge of the physical conditions is indispensable; and if the physical environment of man receives first attention, its full meaning cannot be realized until its human relation is ascertained.

It is only when the pupil understands the facts and principles of physical geography, and man's dependence on and adaptation to natural phenomena, that political geography is intelligible.

In the study of boundaries, history claims supreme consideration. One may be able to memorize the location of national limits, but satisfaction is found in knowing the causes which determined their position.

The knowledge of the boundary of every state in the Union, or of all the nations of Europe, is isolated and uninteresting information, until one realizes why California, for instance, is one hundred and fifty times larger than Rhode Island; or why Dakota, when only one-half as large as Texas, was divided into two states, while Texas was left one immense tract, and how the present political map of Europe was carved from its past geographies.

In the study of cities—the focal point of national interest—the knowledge of the causes which have led to their location and development surrounds them with a vitalizing interest. To know that London, the largest city in the world, is located on the Thames River is an item of some slight interest, to be sure; but to know that the Romans, sailing up the Thames, selected the first rise of ground above the level plain upon which to land their goods for distribution among the barbarians, and to have an insight into the influences which have contributed to its marvelous development, is of far greater value.

But little time need be spent in learning the location of the boundaries of the states of the Union, or of the important cities. In tracing on the daily weather map the movement of storms, and of necessity locating the changes of low and high pressure, as storms move across the country, a familiarity with the position of the cities and states is unconsciously obtained.

In the study of people—their dress, habits, and industries—dramatic representation by the pupils (as has been mentioned in previous articles of the COURSE OF STUDY) makes a most effective and pleasing demand for closer study. One never appreciates a character nor a situation so thoroughly as when attempting to portray the individual characteristics or reproduce the situation.

Pedagogic School: NORTH AMERICA: Political divisions:

I. Location of political divisions.

1. Account for present location of boundaries. What boundaries have been decided within recent times?

2. Where are the disputed boundaries located? (a) Why contested? (b) What occasions boundary complication? (c) What lines are most satisfactory as boundaries? (d)

When mountains or rivers are used as boundaries, what frequently results? (See boundary dispute between Costa Rica and Nicaragua.)

3. What changes are likely to occur in the near future in the boundaries of the political divisions of North America?

4. Why does the republican form of government prevail in North America?

5. Is the possession of islands a strength or weakness to the United States? Why?

6. What are the sources of wealth of Canada, United States, Mexico, Central America? (a) Which nation occupies the best position in North America? (b) Why?

7. What are the leading exports and imports of each country?

8. What is our commercial relation with each country? How could our relations be improved?

9. What will be the probable influence of opening the Panama or Nicaragua canal?

II. Distribution of cities.

1. What influences location and growth of cities?

2. Locate and describe principal characteristics of the capital cities. (a) Are they well situated? (b) Why?

3. Locate and describe principal characteristics of the leading commercial cities. Why have they developed?

4. Locate and describe principal characteristics of leading mining cities. What determines their life?

5. Where are future great cities liable to develop in North America?

6. Why is New York the metropolis of North America? Will it maintain its supremacy?

References: Mill, *International Geography; Compendium of North America;* Reclus, *Earth and Its Inhabitants;* Shaler, *The United States of America.*

Art Expression: 1. Model in sand or clay the relief map of North America.

2. Draw on paper large relief map of North America showing political divisions.

3. Draw in color scenes showing typical industrial interest.

4. Write a plan for teaching some part of the geography of North America, adapting it to the Fifth Grade.

Primitive Social Conditions

Emily J. Rice

The prevailing tendency in the teaching of history is to place emphasis chiefly upon its political and governmental features. Perhaps two reasons for this may be discovered. In the first place, the last century saw a great struggle for individual freedom and for equality of political rights. It was only at the end of the century that these notions began to give way to that of social obligation. In the second place, the subject of history has not been introduced into the curriculum until the pupils were old enough to warrant their interest in political institutions.

As public interest in social needs grows deeper, the historic significance of the industrial and economic phases of history is better understood. We learn that economic conditions underlie political institutions, and must be taken into account in their development.

The attempt to give the children an appreciation of their social environment shows also that industrial history may be made useful for almost the youngest children in the schools. They may learn that the implements and machinery seen daily in use have been worked out slowly by the necessities of the race. They feel the possibilities of their own work as they see it illuminated by the patient efforts of past workers.

In order to find the beginnings of industrial history, we must go back to a time when man depended directly upon nature. In the early life of the race, all the arts were in simple forms and grew out of very evident necessities. Primitive man was

obliged to provide himself with food, clothing, and shelter, and in order to do this he solved problem after problem which nature presented to him. The solution of one problem helped toward the next, and thus, slowly and gradually, the arts of civilization developed.

If the hand-work of the school gives the children an opportunity for cooking, sewing, and building, these occupations furnish a basis for the study of historic industries. History shows the children the value of their work, makes them partakers in the movement of progress.

The earliest historic conditions to present are those in which man subsisted upon natural food, and had no supply stored up for future use. The getting of food, no doubt, occupied the largest share of attention for thousands of years. People must have spent most of their time in procuring their precarious supply of roots and berries, or even of animals. They remained in one place only until these were exhausted, and then wandered about the forests in search of more. Consequently, their shelter was of the poorest sort, in such places as nature supplied, as trees and caves, or in rude huts of their own construction.

They needed tools to help them in hunting and fishing, and this need led to the shaping of stones, and finally to that remarkable assistance, the bow and arrow. From the skins of the animals which they procured for food, they made their clothing. They lived in clan groups, often hundreds of people in one house.

This phase of life is represented by the Cave Men and the American Indians. *The Story of Ab*, by Stanley Waterloo, and *Hiawatha*, by Longfellow, are good literary representations of the period.

The conditions of life should be presented by the teacher through story-telling and drawing; for instance, the forest environment and the animals of that early time.

WORK OF PUPIL IN SECOND GRADE

The children may suggest what people can do for food, tools, fire, houses, furniture, and clothing. They may also reproduce these arts as far as appears to the teacher consistent with the social value of the articles to be constructed.

The next phase of life to present is that of the shepherd. This involves the taming of animals and a permanent supply of food. The use of artificial food is so important that people who have learned to gain subsistence by it can no longer be called savages, but deserve the name barbarians.

When they stored up food by use of flocks and herds, they still roved about to find food for these animals, but remained longer in one place than before. Their environment was the great plains rather than the forests. Getting their food did not now occupy all of their time, and other occupations developed. They learned to spin and to weave, and to make better tools than before. They lived in tents. They protected life instead of destroying it, and thus became more gentle in character, more thoughtful of human life. They watched the growth of vegetation for their flocks, and noticed the signs of the heavens. Flocks and herds were the property of the

WORK OF PUPIL IN SECOND GRADE

tribes, and the patriarchal family was their social organization.

Shepherd life led gradually to agriculture. Finding a river valley where the soil was so fertile as to tempt them to remain, and where there were mountains, deserts, or seas to protect them from invasion of hostile tribes, they became tillers of the soil. This meant settled homes, permanent houses, perhaps of brick or stone, and therefore the beginnings of architecture, metal tools, division of labor, individual ownership of land, the breaking up of the patriarchal family into the village community, the beginnings of commerce, and finally the development of city life.

The above is an outline of the primitive social conditions that may be presented to children. It will be observed by reference to the October number of the COURSE OF STUDY that the first year's work in our own school is a study of the industries of to-day, with very little attempt to give the history of these industries. Our experience is that the children seven or eight years of age are able to follow improvements in invention, and to trace to some extent the effect of each new invention on the power of man to think and to act. The accompanying illustrations are reproductions of casts made by the Second Grade children in connection with this study, while the frontispiece gives a view of the class weaving.

Pedagogic School: The Pedagogic School is now studying primitive social conditions, with especial emphasis upon American history, and the effect of the geography of North America upon its aboriginal inhabitants. For details of plan, see outlines of Second Grade work by Miss Hollister and Mrs. Atwood in previous numbers of the COURSE OF STUDY, and the Fifth Grade outline by Miss Mitchell in the February number.

A Study of Play

Bertha Payne

The answers given by the Pedagogic Class to the questions in a previous number of the COURSE OF STUDY, under the heading "Reminiscences," have been partially collated, and the first seventeen answers to the question, "What were your favorite playthings before the age of seven years?" are presented here as being suggestive:

1. "I do not remember anything definite of my games and playthings before the age of seven. I do remember that I liked blocks and books, dishes and clay."

2. "Balls, dissected blocks, swing, dolls (only when I was quite little), paper cutting."

3. "My younger sister and I were much together, and always played with dolls. We felt that they were real persons, and made them imitate persons of our acquaintance. I learned to sew for my dolls, and by degrees to sew for myself."

4. "I never cared for playthings. I do not remember any that I had except a doll. The

only reason I liked the doll was that it served as something for me to decorate with clothes of my own making. I was always given books instead of playthings, because I liked them better."

5. "My sister and I treasured our dolls above all other playthings. We played with and loved the headless ones quite as much as the others."

6. "Some of my favorite playthings were a doll, doll cradle, carriage, flat-iron, little pans in which I made cakes of sand, hammer, blackboard, and eraser. I did not care so much for the doll as for the cat, which I used to dress in the doll's clothes, and rock in the cradle and wheel in the carriage."

7. "The playthings I used most were dolls and dishes, table and playhouse, toy animals, marbles, hammer and nails."

8. "My constant and dearest playthings were dolls, especially paper ones."

9. "I do not remember playing with dolls, or making believe. My plays were all of running, playing tag, jumping ditches and jumping rope, and other active outdoor games."

10. "I remember having large families of dolls."

11. "I can remember no playthings that I had before the age of six, save dolls and their furniture and belongings."

12. "My playthings were chiefly dolls."

13. "Dolls; some we made of sticks and flower petals."

14. "Picture books, dolls, and toy furniture."

15. "Dolls, of which I had a large collection."

16. "A baby doll that could be dressed and undressed was the best-loved plaything of my childhood. Things that related to the doll, chest, cradle, and furnishings for the house. Blocks and marbles."

17. "Dolls, small table, buggy, and other appurtenances of playing house."

It is quite evident that the writers were women. Nothing was said to the students who wrote these reminiscences of dolls, or indeed of any other playthings. It is remarkably suggestive. If this love of repeating the life of older people in play is so strong, it is quite certain that it ought to be recognized in the early school life of children as well as in the kindergarten.

Even in these few statements one can find two elements of interest that are common to most children, and can be employed in an educative way:

1. Love of dramatic play.
2. Love of making.

The following extract is given in full because it presents a clear picture of a child absorbed in play, playing continuously, and studying life with a view to creating scenes through dramatic action:

"I remember little of my childhood before the age of seven, and the memories are very broken. Before that age most of my games were with my mother, and sometimes with my uncles. I did not go to school before I was seven. As nearly as I can remember I looked upon the people as more apart from me than objects, which seemed to be a part of myself and to share my pleasures.

"I liked best those games that called for invention and imagination. I remember having whole families of buttons, and these button people were very real to me. A certain carved box of ivory chessmen was a constant delight; but the greatest joy among my playthings was a clothespin; in fact, two different sizes of pins, which I could dress in scraps of cloth and whose faces I could mask. They were much more interesting than all the toys given me, although I always loved my dolls, especially as I grew older. I never cared particularly for any one doll, but had a large family of small ones that lived together in a house, and really lived to me. Even now I sometimes keep on with the story of their lives, and I would not part with that family. It has grown up with me.

"I used to sit in the front pew of the church while my mother sang in the choir. I can remember hoping that every one knew it was my mother. At the next opportunity I would let my large clothespin doll sing to a very great congregation, and then the little clothespin would sit so still in the front seat and not turn around even once.

"It seems to me that my most vivid images were those left in connection with music in some way.

"I was always much interested in anything in which I saw a possible chance of entertaining my doll family, and of having them reproduce the experiences in their own action. It was for this reason, also, that I was so fond of reading and being read to. I always had a great deal of it, and found in it much material

for play reproduction. I had especial joy in imitating the actions of older people. One of my first memories is of finding a glove, putting it on, and yawning as I had seen a visitor do.

"I used to imagine large cities around the roots of trees, and here would have every event take place that I could recall in my own experience. I planned whole days of events and played them. When the boys played with us, one of them usually took the lead, and we were willing followers in the more exciting games of battle that ensued."

ANALYSIS:

1. Note the absorption of this child in the world of imagination and its realization in play.

2. The part played by objects, not so much materials used in making as symbols. The object had no real correspondence in detail to the thing it was made to represent. It merely suggested it.

3. The plays grew as experiences multiplied and ideas became fuller and stronger. It was continuous.

4. Reading with express purpose of expression in dramatic form.

5. Study of people and events with the same purpose.

PRINCIPLES INVOLVED:

1. Dramatic presentation is one great means of holding ideas and expanding them in childhood.

2. Vividness of imagery characterizes the play.

3. Vividness and truth to nature in the play show that the child was not merely imitating the external form, but absorbing the mood, and often motive, of the person imitated.

4. It follows that there is here much implicit study of psychology.

5. Is it worth while to make conditions such that the child has the best model from which to copy?

6. The force of suggestion is a powerful factor in determining what a child reproduces in play.

7. The kindergarten uses this instinct. Is it possible to suggest too much—to exclude experiment, invention, and to delay the work or attainment of real ends too long?

The essential educational principle in these plays is that of growth by means of expression. Characters are tried on, and in so doing the children enter into a comprehension of them, consequently into sympathy with other persons. They are thus forming ideals, and living them. Here is the place of the story as a great force, made more effective by dramatization. As the children of a kindergarten were playing Grimm's story of *The Elves and the Shoemaker*, one tiny three-year-old was heard to murmur, "Good little brownies." Yet there had been no moralizing.

Life is bounded for the younger children by their immediate environment. Interest centers round the more striking activities, especially those that contribute in some way to their welfare. Processes, such as blacksmithing, housebuilding, the work of the engineer, all industries, in fact, that come within the child's experience, are food for play representations, and have their function in enlarging their ideas of the skill of the worker and the mode of work as well as the motive.

Materials are needed to realize these images. For nursery plays, the youngest children need but an object or two as a center on which to expend activity. The imagination transforms; so a bottle becomes a doll, a rolling-pin, or a soldier, as the idea changes.

Construction begins when details of the image demand a greater fitness in this material. Blocks, clay, sand-paper, and crayon, scissors and paper, respond readily to the growing idea. Just as dramatic plays become more complex, so constructive plays utilize greater skill and invention. So control of hand and eye keep pace with enlarged experience. The block house needs furniture, each room its appropriate articles. These must be well put together, be as like the real thing as possible. The doll's clothes necessitate choice of color, study of form; and so do

the furnishings for the doll's bed, the table linens, and the kitchen wares.

The transition from play to work is thus gradually accomplished, and the play of the children of the kindergarten, born of the moment and dropped again, becomes more extended in purpose and more real in form.

Music

Helen Goodrich Bertha Payne

Pedagogic Class

I. Sight-reading of new songs, in all keys, first in unison and then individually. Effort will be directed especially toward individual interpretation, after a silent reading of the new musical thought.

II. Sight-reading of rounds as the simplest form of part singing; from this the class will pass quickly to singing part songs in the canon form.

III. Study of part songs in all keys.

IV. Study of scale relations derived from songs. Practice in transposition, where it is desirable to change key, will lead to a study of the relations of the sharp and flat keys to each other.

Heretofore the technicalities of vocalization have received some attention, also the construction of children's songs, but during February the class began a study of the pedagogy of music reading for the first time.

QUESTIONS:

1. Should reading music be put upon the same psychological basis as reading language?

2. What elements are present in staff notation that complicate the process of sight-reading?

3. Should children express musical ideas as freely and as early as they use speech?

4. Does the average child receive as much external stimulus to build up melodic rhythmic images as he receives for forming concepts of the appearance, qualities, and other relations of objects in his thought world? Does he think or attend to tone images with anything like the persistence and frequency that he does to other images? If not, should reading music be begun as early as reading language?

Songs: ROUNDS: *We Merry Minstrels*, *Hunting Song*, and other rounds in the Second and Third Books of the Modern Music Series.

CANON: *Like as a Father* in Tomlins' Children's Songs and How to Sing Them.

PART SONGS: *Spinning Song*, *The Violet*, *Spring Song*, and *Pussy Willow's Secret*, in Songs of Life and Nature (Scott, Forsman & Co.).

The Organization of a Library

Irene Warren Frances Simpson

Classification

For many years each library had a scheme for the classification of books on its own shelves. Every library, no matter how small, felt it desirable to have the books arranged on the shelves according to some classification, and when the public had free access to the books it was believed a necessity. Many perplexing problems arose, such as how minutely to subdivide the classes, and what system of marking or notation should be used to mark the books. At last it was found that many libraries could use the same plan of classification. Specialists were asked to outline their subjects, and these were put together and a notation fitted to the whole plan. Two schemes of classification for books and library material have been carefully worked out in this way, published, and are used to considerable extent throughout the country, and are being adopted in libraries abroad. These are the Dewey Decimal Classification and the Cutter Expansive Classification.

There are often many books in the same class, so an arrangement of books in each class is necessary. It has been found best to arrange the books of each class alphabetically by the authors' surnames; if the book is anonymous, by the first word of the title (excepting *a*, *an*, and *the*). A scheme for the marking of the author number has been published as the Cutter Decimal Author Table, and a more elaborate plan as the Cutter Alfabetic Order Table. The volume number, if there is more than one volume, should be added, and if more than one copy of the book is in the library, the copy number. A possible call number of a volume of Longfellow's poems classified according to the Decimal Classification would be--

811
L85
cop. 2 v. 3

No two books in a library should have exactly the same number, because the books are known in the library records by the call number. The call number should be put in pencil in the upper left-hand corner of the inside cover of each book, and plainly printed in black ink on the label on the back of the book.

It is not necessary for a librarian to read every book in order to classify it. He can usually place the book from the title-page, the preface (which often gives the aim and scope of the book), the table of contents, and by reading a few pages here and there.

The books should be arranged on the shelves consecutively according to their marking. Those books which do not circulate, but are used for reference, should have some mark to distinguish them, and should be shelved in one place. In some libraries a star, in others the letter *r*, is placed before the call number. The lower shelf of every section of shelving should be made high enough to shelve the oversize books. If an *f* for folio or *q* for quarto, as the case may be, precedes the call number, the person looking for the book will be referred directly to the oversize shelf in that section.

An outline of the classification, showing the exact location of each class of books in the library, and also any notes which will explain the shelving of the reference and oversize books, should be placed where the readers can easily refer to it.

Manual Training

Ira M. Carley Cora Champlin

The pupils who are studying woods will make a piece of apparatus for testing the breaking strength of the different varieties of wood. It has been decided to make the tests for determining the strength with weight at right angles to the grain with pieces 14 in. x ½ in. x ½ in.

The apparatus will consist of a base 16 in. x 4 in. x 1 in. At each end of this base, upright pieces 5 in. x 4 in. x 1½ in. are set and screwed firmly in position.

On the upper end of each upright, at the middle of the inner edge, a square rabbet ½ in. x ½ in. x ½ in. is chiseled to receive the ends of the stick to be tested.

Along the center line of the base a slot, 10 in. x ¼ in., is cut to allow the passage of the cord by which the weight is suspended from the piece with which the experiment is being made.

The center point of the base is marked, and a scale of ¼ inch is laid off along the edge of the slot from the center toward each end.

For furnishing and beautifying their recitation-room, the students of the High School have decided to make a screen and a settle.

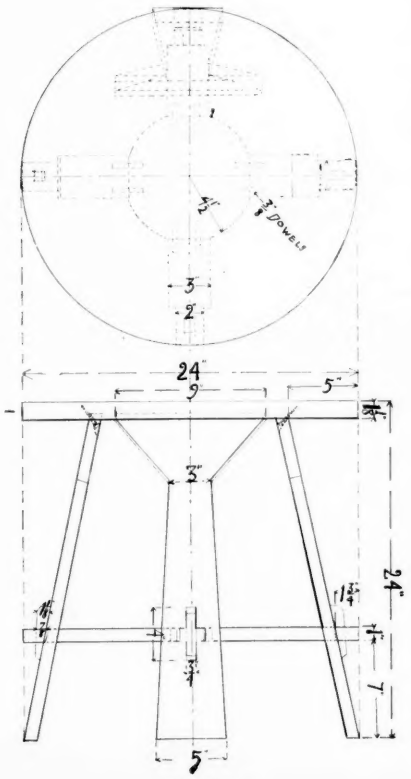
The boys will do the wood and metal work, and the girls will make pillows for the settle and the panels for the screen. Both girls and boys will work on the designs of the two pieces, and on the working plans.

As yet only the general dimensions of the pieces, determined by the places they are to occupy, have been decided.

The first step in the work will be the making of a preliminary sketch giving the ideas of each pupil. The class will decide upon the most satisfactory one of these sketches, and it will be modified and elaborated, with whatever advice may be necessary from the Manual Training and Art departments.

From the preliminary sketch, a picture large enough to be seen by the whole class will be made.

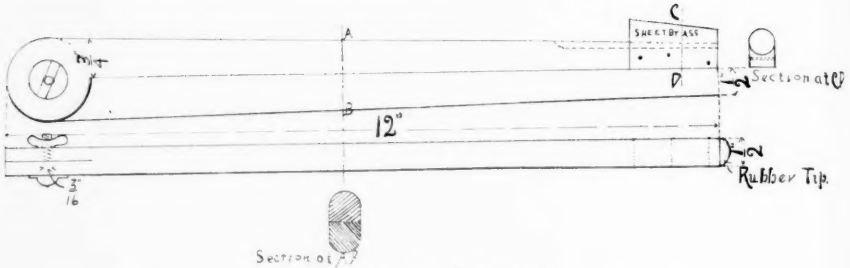
From this picture, and from whatever written specifications in addition may be necessary, the working plans will be made.



TABLE

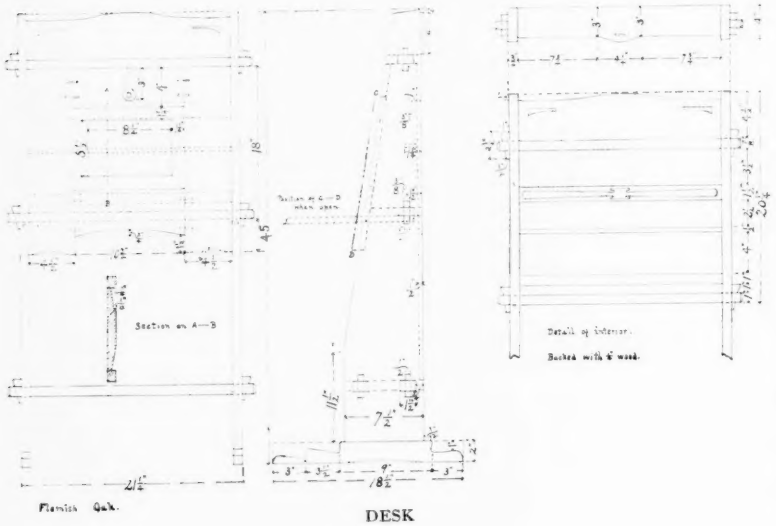
Oak, stained brown or gray-green.

This plan is for use of the High School or Pedagogical students in the Arts and Crafts work.



BLACKBOARD COMPASSES

Pencil compasses for blackboard drawing. To be made by 1st year High School students for use in geometrical drawing.



DESK

Physical Training

Carl J. Kroh Caroline Crawford

Individual Gymnastics

I. Suggestions as to direction of necessary attention and work.

The first essential of all physical development is nutrition. If the nutrition of the child were carefully studied, and some knowledge of what is essential for the proper assimilation of food obtained, the results of effort toward a better physical development would be much more satisfactory. The following course is outlined for the winter and spring quarters. The amount of food consumed daily by the child will be at first estimated in only a general way by averaging daily servings. Later more accurate work will be obtained. The condition of the blood—amount of hæmoglobin, and number of red corpuscles—will be found from examination. This data will be combined with the measurements of the body, and thus some interesting and valuable results can be obtained which will furnish a more comprehensive and accurate basis for future study. This study includes the co-operation of the mother and considerable home attention. The following table is a guide:

Name ----------

Date ----------						
Amount of food ----------						
Proteid ----------						
Fat ----------						
Carbohydrate ----------						
Total ----------						
Calories ----------						
Blood ----------						
Hæmoglobin ----------						
Corpuscles ----------						

II. Results of measurements, physical defects.

What are the most prominent defects needing special attention? This question must of course be answered in every individual school, but if the answer includes the same things in general, and if the number of children needing such individual attention to overcome mal-development is large, then the conclusion which must be drawn is that the conditions at home and school are not yet conducive to the best development of the child. Here is the basis for our future study of the physical development of the child.

From the Fourth to the Eighth Grades, inclusive, there are scheduled as a result of examination the following defects, which are prominent enough to demand constant attention and remedial treatment:

Forward head, 10.
Flat chest, 4.
Hollow chest, 4.
Prominent scapulæ, 11.
Low shoulder, 6.
Hollow back, 10.
Irregular hips, 5.
Lateral spinal curvature, 2.

There is emphasized in this outline the lack of attention, or the wrong direction given to the position of the child when standing. All motor work in the school—reading, singing, writing—must be an opportunity for emphasizing the standing position. Good standing should be a habit, learned as a child learns cleanliness, and it is as much a part of personal hygiene.

The analysis of standing will be the next subject treated of under individual gymnastics in the COURSE OF STUDY.

References: Atwater and Benedict, *Experiments on the Metabolism of Matter and Energy in the Human Body* (U. S. Experi-

ment Station Bulletin No. 6); Atwater and Langworthy, *Digest of Metabolism Experiments in which the Balance of Income and Outgo was Determined* (U. S. Experiment Station Bulletin No. 45); Atwater and Rosa, *Description of a New Respiration Calorimeter and Experiments on the Conservation of Energy in the Human Body*) U. S. Experiment Station Bulletin No. 63); Atwater, Woods, and Benedict, *Report of Preliminary Investigations on the Metabolism of Nitrogen and Carbon in the Human Organism* (U. S. Experiment Station Bulletin No. 44); Randolph Faries, *Practical Training for Athletics, Health, and Pleasure*, pp. 71-81; Robert Farquharson, *School Hygiene and Diseases Incidental to School Life*, pp. 37-73; M. Foster, *Text-Book of Physiology*, pp. 379-386; Foster and Shore, *Physiology for Beginners*, pp. 128-151; Mrs. L. E. Hogan, *History and Present Status of Instruction in Cooking in the Public Schools of New York City* (U. S. Experiment Station Bulletin No. 56); Wm. Howell, ed., *American Text-Book of Physiology*, pp. 213-306; H. Huxley, *Lessons in Elementary Physiology*, pp. 143-168; Jordan and Hall, *Digestibility of American Feeding Stuffs* (U. S. Experiment Station Bulletin No. 77); D. F. Lincoln, *School and Industrial Hygiene*, pp. 19-23; New York State Reformatory (Elmira), *Eighteenth Year Book*, pp. 140-150; F. L. Oswald, *Physical Education, or the Health Laws of Nature*, pp. 27-73 and 226-241; E. A. Parkes, *Manual of Practical Hygiene*, pp. 203-224, 225-290 and 294-368; J. E. Pilcher, *First Aid in Illness and Injury*, pp. 70-76; E. H. Richards, *Cost of Living as Modified by Sanitary Science*, pp. 65-81; Snyder, Frisby and Bryant, *Lessons in Boiling Vegetables and the Composition and Digestibility of Potatoes and Eggs* (U. S. Experiment Station Bulletin No. 43); Snyder and Voorhees, *Studies on Bread and Bread-Making* (U. S. Experiment Station Bulletin No. 67); Julius Uffelman, *Manual of Domestic Hygiene of the Child*, pp. 13-109; C. E. Wait, *Dietary Studies at the University of Tennessee in 1895* (U. S. Experiment Station Bulletin No. 29); C. E. Wait, *Nutrition Investigations at the University of Tennessee in 1896 and 1897* (U. S. Experiment Station Bulletin No. 53); A. D. Waller, *Introduction to Human Physiology*, pp. 248-289; W. H. Williams, *Chemistry of Cookery*, pp. 313-324.

Home Economics

Alice P. Norton

Pedagogic School: The work of March will complete the course on food given to the training class. No attempt has been made to present a thorough course in cookery. The aim has been to illustrate principles, and to give to the students an insight into the subject which will enable them, if they choose, to do further study by themselves, and to enter into the work of the special teacher with whom they may be connected in their teaching.

The work for the latter part of February and the first of March will be on yeast bread, and baking-powder mixtures. Special topics will be assigned to different members of the class. The outline of work is as follows:

I. Yeast.

1. Definition:

A simple one-celled plant, of minute size, reproducing by means of budding.

2. Form and structure:

Oval in shape; consisting of a cell wall of cellulose filled with protoplasm.

3. Conditions favorable for growth.

(a) Moisture.

(b) Food: { Proteid. Mineral matter. Sugar.

(c) Temperature of 20° C. to 30° C. (68° F. to 86° F.).

4. Changes caused by growth.

Yeast is a ferment, and as a result of its life processes changes sugar into alcohol and carbon dioxide. In the process of bread-making starch is changed into sugar, and authorities differ as to whether this change is produced by means of the yeast, or by a ferment present in

the flour. The chemical reactions may be expressed as follows:

STARCH. WATER. SUGAR.

$C_6H_{10}O_5+H_2O=C_6H_{12}O_6$ (dextrose),

or or

$2\,C_6H_{10}O_5+H_2O=C_{12}H_{22}O_{11}$ (maltose).

DEXTROSE. ALCOHOL. CARBON DIOXIDE.

$C_6H_{12}O_6$ (+yeast)$=2\,C_2H_6O+2\,CO_2$

MALTOSE.

$C_{12}H_{22}O_{11}$(+yeast)$=4\,C_2H_6O+4\,CO_2$.

The souring of bread, that is, the change of alcohol into acetic acid, is produced by bacteria, not by yeast.

5. Kinds.

Yeasts in common use in bread-making are liquid, dried, and compressed yeasts. The last is a by-product of the whisky industry.

6. Experiments.

(a) Add to a cup of boiling water one tablespoon of molasses, and one-eighth of a yeast cake crumbled into bits, and pour the mixture into a tumbler. Add an equal amount of molasses and yeast to a tumbler of ice-water, and also to a tumbler of water at a temperature of 80° F. Notice the time when bubbles, indicating the formation of gas, appear in the liquid, and the comparative amount of gas formed. Which is the least favorable to the growth of the yeast, extreme heat or cold?

(b) Fill a test-tube with a mixture of molasses and water, and add a little yeast. Invert the test-tube in a saucer containing a little of the molasses mixture, support it in place, and leave for twenty-four hours. Identify the gas formed by bringing the mouth of the test-tube next the mouth of another tube containing lime-water; and by inserting a lighted match in the gas.

(c) Examine some yeast under the microscope.

II. Wheat.

1. Structure of wheat grain.

A section will be studied under the microscope to show the starch cells, the gluten cells, and the different layers of the bran.

2. Manufacture of flour from wheat, with a description of the milling processes.

3. Composition of flour.

Atwater gives as the average composition of one hundred samples: Water, 12.5%; proteid, 11.3%; fat, 1.1%; carbohydrates, 74.6%; mineral matter, 0.5%. The class have already determined roughly the composition by the following experiment: Weigh 50 grams of flour, tie it into a weighed square of cheese-cloth, and wash in water till nothing more can be washed out. Examine the tough, elastic substance which remains in the cloth. Dry this on the cloth and weigh it. The starch may also be dried and weighed.

4. Comparison of wheat flour with that from other grains, as a material for bread-making. Mix flour and water, corn-meal and water, rye flour and water, and compare the doughs formed. The gluten of the wheat gives the elasticity to the dough, and enables it to retain the bubbles of gas formed.

5. Comparative digestibility and nutritive value of white and whole-wheat flour.

III. Process of bread-making.

1. Comparison of long and short process. The former probably produces a more digestible loaf, but the latter is easier to watch, as to temperature, etc., and so less likely to sour. For class-room work the short process is best.

2. Rule.

Many different methods give good results. The one given will be:

1 pint of liquid (milk, or milk and water).
1 tablespoon of butter.
1 tablespoon of sugar.
1½ teaspoon of salt.
1 yeast cake moistened with ¼ c. of water.

Flour to make a dough stiff enough to knead (about 6 cups).

Scald milk, add butter, sugar, and salt, and cool to 80° F., or until it feels cool to the finger. Break the yeast into bits, and mix it thoroughly with the water at a temperature of 80°; add to the milk, and stir in the flour gradually, with a knife or wooden spoon. When the dough is just stiff enough to make into a smooth ball, knead it on a slightly floured board till smooth and elastic. Return it to the mixing bowl, cover closely with a cloth and tin cover, and let it rise till double its bulk, keeping it at a temperature of about 75°. Shape into small loaves, place in the pans, cover, and let rise till it again doubles its bulk. Bake in a hot oven for about fifty minutes.

3. Discussion of reason for use of each material; essential and non-essential materials distinguished. Importance of temperature; reasons for baking.

II. Baking-powder mixture.

The class will be asked to look up the subject of baking powders, and to outline a lesson on the subject suitable for a class in the Seventh or Eighth Grade. The question of how much chemistry it is desirable to teach such a class will be discussed, and from a number of experiments suggested, those best adapted for the

pupils will be selected. The following week one member of the class will teach the lesson to the Seventh or Eighth Grade, while the other members will observe.

The rest of the month will be given chiefly to a discussion of methods of teaching, of the correlation of cooking with other subjects, and of the value of such work in the training of the pupil.

References: Mrs. Wilson, *Handbook of Domestic Science;* Goodfellow, *Dietetic Value of Bread;* Richards and Elliott, *Chemistry of Cooking and Cleaning;* Mrs. Abel, *Practical, Sanitary, and Economic Cooking*, pp. 81–106; Lassar-Cohn, *Chemistry in Daily Life*, pp. 87, 96, 108; Sedgwick and Wilson's *General Biology*, pp. 184–200; Jago, *Science and Art of Bread-Making;* Government Pamphlets, Bulletins 34, 35, 67, 112; *American Kitchen Magazine*, Dec., 1900; also Vol. 7, pp. 3 and 195.

Cooking in the Primary Grades

Flora J. Cooke

During this month but little actual cooking will be done, as another phase of school economics seems more important and essential to the children at this time.

The question will be the simple purification of water for drinking. They will attempt to make pure enough for drinking the water from the hydrant, and that which they bring home from the lake and the swamp. The same problem in another form will be presented during the month—i. e., to get sugar from maple sap. For this purpose they have as usable knowledge their observations in all the previous cooking lessons, their practical experiences at home, and many general observations in regard to moisture.

As a direct preparation for next month's work in planting the garden, the children will make a record of what they have observed concerning the absorption and evaporation of water. In this connection, to correct false impressions or clear up vague images, they may need to prepare and to cook again various foods used in previous months.

In the Third and Fourth Grades the children have already asked questions and made surmises which will make necessary some or all of the following experiments:

Number: Requiring work in volume, area, weight, time, and lines, in addition to subtraction, multiplication, division in whole numbers and fractions.

Evaporation: In the work in cooking last month the children discovered that when rice was soaked over night in a certain amount of water there was always some of the water which had not gone into the substance, for which they could not account. It was necessary to have enough water to cover the rice during the time it was soaking, and they could not estimate the necessary amount. This month we shall have the following explanatory experiments in evaporation. These will also give some useful data for their garden work in May.

Problem: What affects the rate of evaporation?

1. Series of simple experiments with two tin water vessels of equal size, placed under varying conditions. Fill the vessels with water; weigh them. Close one of the vessels, leave one open. Place them in a warm, light place for a certain length of time; weigh again. Place in a cold, dark place. Place near the ceiling, near the floor, outdoors, etc., for the same length of time. Compare the results. What caused the differences observed?

2. Series of experiments with the following tin vessels, each having a capacity of 16 cubic inches, but of varying depths, shapes, and areas of exposed surface. Open surfaces of boxes: 4×4, 8×2, 16×1, 2×2, 8×1, 2×1, 2×4, 1×1, 1×2. Fill these with water and subject them in sets to the above conditions. In accounting for the differences noticed, it will be necessary for the children to find the contents of each box, the area of open surface, the relation of the open surfaces to each other, the weight of each before and after a certain period of evaporation. Record the conclusions made by the children. See if they use these results to explain what they tried to find out last month. How does it explain other things which they constantly see, as the drying of clothes, of the

soil, etc.? Discover if they see any connection between this work and the formation of clouds, rain, but do not force them to make inferences. (See First and Second Grade Outline.)

Correlated reading, writing, and language lessons will be used constantly as means to clear imaging, but the children will not be limited to any fixed form or mode of expression. Their effort will be to make themselves understood, and their work will be criticised from that standpoint.

It will be seen that this work is quite as well correlated with the subject-matter for the Third and Fourth Grade pupils, who are studying the necessities of a city and the qualities required in good citizens, as with that of the First and Second Grade children, for whom it was originally planned.

Answers to Questions

COLONEL F. W. PARKER:

Dear Sir,—I am reading and discussing with my teachers your *Talks on Pedagogics*. We begin to see through a glass darkly the bearing of the great truths you utter, the terrible inadequacy of our work, due to our false aims; and yet we have to console ourselves with our helplessness unless the public would allow and our superiors in education require us to do differently. You certainly, sir, in my case at least, I am sure, accomplish one thing—a hungering and thirsting for better things, for the truth in education.

But we have now come to your chapter on school government, and I grant the truth of your contentions about the necessity of training the child's will, of giving him a chance to choose, etc. But I cannot see how in schoolroom practice, with children as they are, with homes as they are, we can get along without resorting to expedients other than letting the scholar choose the right if he will, or when he will, as you seem to suggest. For instance, on p. 365 you say: "If a child commits a crime against the school, an immediate punishment may settle the case and bring quietness, if this is the end to be worked for; but it does not educate the child. He has no choice; he is not led to rule himself; he is compelled to comply through fear." Now, of course, you do not mean here a beginner in school, or one who has done something he did not already know he should not do, but rather, I suppose, you mean one who has done something that the teacher thinks is wrong, but he—the child—does not think is wrong. Then, of course, all you say applies. But suppose the scholar does purposely and willfully what he knows to be wrong, and which he fully admits is wrong (and they will so do, and admit it and persist in the doing, and are the ones who cause all the real difficulties in discipline), what shall we do with him? I work on these plans and principles, and I will be wonderfully obliged if you will criticise them constructively. I mean, give something where you take it away.

The case:

I am responsible for a grammar school.

Nine teachers out of ten are poor disciplinarians. (You say, get good ones—impossible.)

Problem: How to get the best of it. (This I wish you would criticise, pro or con.) I instruct teachers to do their utmost to keep things right with the least possible pressure, but if a child willfully and purposely and repeatedly violates well-established standards of conduct and order, his written record of conduct suffers accordingly, and justly so, for he has no right to be rated equal to his mates who do well. When he has lost one hundred demerits, he is to *be brought* by his teacher to me for a hearing. If he continues, he must write sentences for his marks hereafter until he loses two hundred, when he must be *brought* for a second hearing; and for marks after two hundred to three hundred he must take notices of his misconduct home to his parents; and when he has lost three hundred he will be suspended for a time, and readmitted, to be brought before the Board of Education at his next suspension.

During all this time I do, and try to get the teachers to do, just what you advocate—train the child to choose to do the right because it is right.

And I further claim that any trouble of consequence in a room by *many* children of the room is a defeat for the teacher as a capable disciplinarian.

But I believe, from a principal's standpoint where he is generally responsible for the success of his school, and where he *must* work with teachers of very weak ability as a rule, that some such plan *is necessary* in order that he may best assist them in maintaining workable order.

Now, sir, if it is not asking too much, I wish you would tell me what you can commend in this, or what is a better way, if you cannot commend it. And if you will allow me, I want to say this, which you may often hear, but have probably seldom heard. The people who do the school work, the rank and file, are hungering for bread—the bread of practical suggestions for every-day work from those who in books and on the platform deal in the great principles. We cannot get it in books, nor from the platform. And the few papers that attempt to give it, or some of it, are not written by those capable of speaking in accordance with the great principles of teaching.

If you can give me anything on this question of discipline to help in our study, I will be very grateful to you. Very truly,

———.

This letter is from a superintendent who is trying very hard to help his teachers. It is a typical letter, and might have been written by hundreds, perhaps thousands, of superintendents.

All advance in education must necessarily be very slow, depending as it does wholly on the teacher, and the teacher upon the public. No system, no method, nothing can help teaching without, first, a knowledge of principles and their practical application on the part of the teacher. But this much is decidedly true, that no corps of teachers can come together week after week and discuss earnestly and honestly questions pertaining to the welfare of their pupils without constantly finding something better. This is especially true if they are not fixed in their ways of doing things, and have a great faith that there is something better.

The question of order is the whole question. When put in the right light, it means attention on the part of all pupils, it means study, it means compromise on the part of each pupil for the good of the whole. Order is the movement of a school. It may be external and repressive, or it may be internal and growing. Most of school disorder is due to the fact that the children have not the right work to do, the right mental nutrition. There is in many schools a narrowness, a semi-starvation of the mind of the pupils which leads them to use their energy in some direction, no matter how or where. Disorder is in general the fault of the teacher. Exceptions to this rule can be easily understood. Of course, the faults of home, heredity, all come in, but with a teacher who will take the means, that is, all-around educative work, disorder will be reduced to the minimum. The marking system is an unnatural and immoral means of keeping children in an external, false order. It is a device calculated to suppress the best in them. The question of order is not a question of limbs or body. It is a question of mind, of a mind attentive and growing.

The best advice that can be given is: Continue to study education, continue to apply what you find. Do not expect great results at first. Be sure your principles are right, and follow it with great steadiness.

FRANCIS W. PARKER.

Reading Lessons for the Primary Grades

Science Series No. 3

Flora J. Cooke

A Good Friend

Guess who I am!
I am your good friend.
You could not live without me.
If you climb high mountains, I am there.
If you go into deep dark mines, I am there, too.
The fire could not burn without me.
The birds could not fly or sing.
Oh! I often play with you.
Sometimes I run you a race.
But I never get out of breath.
I snatch away your hat, and shout,
"Catch me, if you can!"
I fly your kite and sail your boat.
I make beautiful music.
Often you will not listen to me.
That is strange!

I am very strong.
I bring the snow and the rain.
Yet I know how to carry the tiniest seeds.
I bring Jack Frost to your windows.
You never thank me for the pictures.
That is because you do not see me.
I am invisible.
Oh! I am a fairy, am I? Guess again.

I have not told you half I can do.
When I am still, you call me —
When I am moving, you call me —

Water

Science Series No. 4

We use water every day. We use it for drinking, cooking, sprinkling, washing, bathing, and for power.

We brought home some water from the lake and let it settle. We found sand in the lake water.

We brought home some water from the swamp. We let that settle, too. We found loam in the swamp water.

We examined these waters under the microscope. After that we did not wish to drink them.

We need pure water to drink, so we tried to purify the lake and swamp waters.

We boiled them. The water all boiled away, but the sand and loam were left. We tried again.

We caught the vapor from the water upon cold glass. There was no sand or loam in it. The water was pure.

A Game

We played we were out on the ocean. We had no water to drink, and we were all very thirsty.

Some one said, "Let us get the water from the ocean." We did this, but the water was salt. It made us more thirsty.

A boy said: "I know. Let us strain the water." We did this, but the water was still salt.

Then a girl said: "I know. We must boil the water." We did this, but the water seemed more salt than before.

The captain said, "Try catching the water vapor on cold glass." We did this. The water was fresh and pure.

How do you think that we got enough water to drink?

Sunshine Stories

Literature Series No. 7

(Adapted from Hans Andersen by Gudrun Thorne-Thomsen.)

This is the story the sunshine told.
Once there was a beautiful bird.
It glittered and shone, for it was of pure gold.
It was so beautiful, and sang so sweetly, that people were happy when they saw or heard it.
Many a boy and girl tried to catch it, but never could do it.
One day the bird flew far into the forest.
An old woman came to gather sticks for her fire.
"What glitters so in the grass?" she thought.
She picked it up, a wonderful gold egg.
A bird sat in a tree and sang.
The woman carried the egg home.
She took good care of it.

One day it cracked, and a beautiful bird pushed out its head.
This bird had four golden rings around its neck.
The woman had four sons.
She gave each boy a ring.

Once the first boy played near a ditch.
He found some clay and took it in his hands.
He molded and molded till the clay seemed to live.
He had made a great statue.
People wondered at his beautiful work.

The second boy went into a meadow.
How sweet the flowers were!

Red, yellow, blue, and purple. Yes, all colors were there.
The boy took some flowers in his hand.
The juice flew into his eyes and dropped on the ring of his finger.
His eyes and his hand began to work.
He painted the pretty flowers, the trees, and the sky.
People talked of what a great painter he was.

The third boy put the ring between his teeth.
Then he blew on it.
It was like a bird's song.
It sounded like the wind in the tree-tops.
It sounded like a brook running down the hill.
People began to sing when they heard him.
The boy was happy.

The fourth little boy went into the woods.
He sat down under a tree, with a pen in his hand.
The wind came and whispered something to him.
The boy wrote it in his book.
Then he went to the great ocean.
The waves whispered something to him.
He wrote it in his book.
The rain and the sunshine, the flowers and all the trees told him their secrets.
The boy wrote it all in his book.
What a beautiful story he told.
"I kissed each leaf of the book," said the sunshine.
People are happy when they read this book.

"Awake!" said the sunshine,
"'Tis time to get up,
Awake, pretty daisy, and sweet buttercup.
Why, you've been sleeping the whole winter long;
Hark! Hark! Don't you hear?
'Tis the blue-bird's first song."

The Kindergarten

OUTLINE FOR MARCH AND APRIL

Anne Elizabeth Allen

Unity

"Many hands make light work."
"All needed by each one."

Working with one's hands, instead of holding its place among the blessings of life, has been looked down upon as only intended for those who have been forced by poverty to engage in it. In order to reinstate manual labor to its really high position in the economy of individual as well as national life, we must begin to dignify it in the eyes of little children. He who works well, who accomplishes in the deftest, most skillful way a piece of work, earns the respect of all.

When each one does his share of work, and seeks to make this share a help to the whole, working toward the perfection of that which will be of service to the most people, then must his place in the community be recognized and respected. For this reason, certain duties should be given each child at home and at school, the performance of which in the best way shall be easily recognized as necessary to the good and comfort of all.

The preparation of the earth by the spring winds, rain, and sun for its summer occupation by plant life offers us a wide field for experiment and observation. Each element performs its function in its own time, and when all work together equally, the result is shown in the perfect growth of vegetation.

Beginning in March, we shall observe closely the work of the wind upon the earth and its function in domestic and commercial life, in nature, and in play; and we shall endeavor to find out our relation to the best use of it, as a power.

Function of the wind in domestic life: Drying clothes and drawing water; in the country, turning the fans of the mill.

In commercial life: Blowing ships whose sails are spread.

In nature: Blowing old leaves and grasses out of the way, and getting seeds out of crevices.

In play: Helping to fly kites and to turn pinwheels, weather-vanes, etc.

Watch the direction of wind, and find which wind prevails; which wind is warmest, which coldest. Observe work of the wind outside, and make excursions to the park as often as the weather permits, to watch for seeds, return of birds, etc., and examine condition of earth.

April will bring warm rains. We shall watch the thawing of the earth, and get different kinds of soil, loam, sand, and mixed loam and sand, put it in boxes or flower-pots, and test the nourishing qualities on the growth of beans or peas. Also test growth under different conditions—with and without water, sunlight, warmth, and different soils. Observe changes in nature as spring rains begin and sun grows warmer, seeing how all the elements work together to prepare for summer.

Next we shall take up house-cleaning within doors.

Articles needed: Brooms, dust-pans, tack-hammers, tack-claws, tacks, nails, scrubbing-brushes, chamois-skin, dust-cloths, buckets, ladders, picture-hooks, paint, paint-brushes, mops, water, soap, sapolio, etc.

WORK FOR EACH PERSON.

Mother's work: Putting things away that are not to be needed soon again, such as heaviest bed-clothes and clothing, and with the father's help selecting new decorations, furniture, etc.

Children's work: Keeping clothes and toys picked up and out of the way, and keeping hands off of new things; trying to dress themselves, and to be as careful as possible not to step on clean floors with soiled shoes.

Maid's work: Taking up carpets, wiping up floors, cleaning walls and paints, beating mattresses, airing bedding, washing curtains.

Man's work: Beating carpets and rugs, oiling and waxing floors, carrying all heavy furniture, etc.

Materials: Paints, charcoal, chalk (painting landscapes, illustrating stories, etc.); clay (illustrating stories); paper, scissors, and paste; large blocks; second, third, fourth, and fifth gifts: triangular and square tablets; sticks, rings, and lintels for decorative designs.

Stories: *Bluster, Bright, and Sparkle* (see April number); *One Day with the Wind* (see April number; *Flying Kite*, F. D. Sherman.

Games: Wind horses; wind blowing clothes on line; wind-mill; ships sailing; kites flying; flags in wind; weather-cock; wind blowing leaves and grass.

Songs: *Weather Song, Rain Clouds, Wind Song*, Hill's Songs; *Rain Coach, Rain Shower, The Sunbeams, The Sun*, Smith's Songs, Part II; *Wind Song, Wind-Mill*, Smith's Songs, Part I; *The Wind-Mill, The Wind*, Gaynor's Songs; *Sons of Æolus*, Moore & Hill Songs.

Instrumental Music: *Instrumental Characteristic Rhythms*, Part II, Clara Louise Anderson; *Musical Rhythms for Piano*, A. D. Scammell.

Rhythm: Bowing movement, music by A. D. Scammell.

GAME OF DRYING CLOTHES: Place several children at arm's length to represent posts. Rope stretched by grasping hands.

Other children bring out washing, which may be their handkerchiefs, or towels, or imaginary articles. Still other children may find out direction of wind, and stand in corner from which it comes, representing blowing of wind. Sunbeams may also dance around washing, and when dry, it may be taken in and clothes-line and poles turned back to children.

SAILING SHIPS: Wind, represented by children, coming from direction discovered outside. One child represents a ship, holding towel or apron for sail. A sailor spreads sail against wind, and ship moves off. He lowers sail, and ship stops moving. Several ships may sail at once. When direction of wind changes, sailor changes sail to catch the force of it.

First and Second Grades

Harriet T. B. Atwood

Geography: The work upon the typical areas, as outlined in October and November, will be resumed during this month, and some of the regions will be revisited.

Owing to the heavy snow-fall during the past months it may be prophesied that Chicago and the surrounding flat region will be a land of slush and mud, with many portions under water. These conditions will be noted by the children, and the problems of drainage, sanitary conditions, and preservation of roads will be discussed as they arise. The children will make some simple experiments in the geographic laboratory, based on their own suggestions, with regard to draining the regions visited.

Field trips proposed:

1. Visit to truck farms between Evanston and Chicago.

Note: Changes since autumn; condition of ground; kind of work going on at the farms; condition of roads. The children will bring back samples of soil and of water from the well.

2. Visit to swamp region south of Eighty-third Street, near Stony Island Avenue.

Note: Topography and condition of land where houses have been built; topography and condition of land which has been left vacant; condition of roads; condition of soil in swamp; remnants of vegetation in swamp which was once Hog Lake. The children will bring back samples of soil and water from the swamp.

3. Visit to the bluff at Highwood, if weather permits.

Note: Changes in appearance of bluff since autumn; condition of soil; appearance of stream; condition of roads. The children will bring back samples of soil and of water from stream and lake.

History: I. Stories of people who live in regions where the melting of snow and ice in the spring is a factor of great influence. By

means of pictures and stereopticon views the children can study lands where conditions are more exaggerated than those here, and can see how different people overcome the difficulties of their environment. The following topics will be considered:

1. Life along the levees of the Mississippi in the spring.

2. Spring floods in streams fed by mountain torrents.

3. A year during which little or no snow fell. Its effect upon farming.

II. The making of pottery. In connection with the work upon foods during February, and the work of purifying water during March, the children will realize the need of dishes for holding food and water. The stories of the ways in which various people met this need will be interesting and helpful to the children, in so far as they can feel the actual difficulties which stand in the way of making dishes. An understanding of those difficulties can best be gained by actual experience, and the work set the children during March will be the making of dishes.

The children will examine the dishes on their tables at home, and suggest ways of making some for their own use in the school, kitchen, or lunch-room.

On the basis of suggestions given by the children, experiments will be made in order to determine the best way to go to work. Each child will be given clay with which to work out his own idea.

After the dishes thus made have become thoroughly dry, the children will put them to the uses for which they were designed. They will find, of course, that they break very easily — many will be cracked in drying — that the clay rubs off upon the articles placed in them, and that all of them soak up water.

More suggestions will then be in order. A trip will be made to the Field Museum to examine specimens made by the most primitive peoples, also the modern specimens which are glazed and beautifully ornamented.

The children will again make dishes, and will experiment in decorating and baking the second lot.

Literature: Sara Wiltse, *The Story of Grandmother Kaolin and the Clay Dishes;* Kate Douglas Wiggin, *Story of the Porcelain Stove; Story of Palissy the Potter; Story of how Books were once Made of Clay; Story of Luca della Robbia; Legend of the Sleeping Beauty.*

Nature Study: Much of the nature study for March will grow out of the making of a spring calendar by the children. In this calendar will be recorded all the signs of spring which are noted from day to day. Opportunity will be given for the study of any of the phenomena in which the children show an interest. Paintings of the outdoor landscape will be made each week, and records of bud development and germination of seeds will be made in color.

At intervals throughout the year, particularly when great changes in weather have occurred, the children have made observations with regard to temperature. During March, when each warm day causes such notable changes, a daily record of temperature will be kept by the children. This record will be made in graphic form on a series of thermometers drawn on a large chart. The landscapes of October, November, December, January, and February, which were painted by the children, will be mounted on large sheets of cardboard, with the temperature records of the corresponding months.

No generalizations, however, will be made with regard to the meteorological observations and their relation to the spring calendar, unless they come spontaneously from the children. The ages of the children vary from six to nine.

Domestic Science: Work in purification of water for drinking. (See Miss Cooke's outline.)

Manual Training: The making of boats or kites to be used out of doors during the spring. Each child will make a careful working drawing of the object chosen, and determine the kind and amount of material necessary to carry out his plan.

Industrial Art: Making of pottery in connection with work in history.

Music: (Miss Goodrich.) There is no change in the work of these grades.

Songs: *Come out, Snowwhite Lambkin,* Grieg, Silver Song Series No. 2; *God Sends His Bright Spring Sun, Rain Song,* Songs for Little Children, Part I, Eleanor Smith;

The Sap has Begun to Flow, The Boat Ride, Songs for Little Children, Part II, Eleanor Smith; *Now Melts the Snow, Early Spring, Snowing and Blowing, What the Robin Sings*. Modern Music Series, Primer.

Speech, Oral Reading, and Dramatic Art: I. Phonic games, and training in hearing and reproducing sound. Dramatization of the Indian story of the robin, and the legend of the *Sleeping Beauty*.

II. Poems: *The Tree*, by Björnsen; selections from *Hiawatha's Childhood* and the *Legend of Pearl Feather*.

Reading: Cyr's, First Reader, *The Story of Maple Sugar*. Printed reading lessons on *Water* and *Air* in February COURSE OF STUDY. Texts of songs written on the blackboard. Printed description of how the first dishes were made. Additional reading lessons for Second Grade: Stories of *The Mole and the Lark* and *Peter at the Dyke*, Cook County Normal Reading Slips; *How the Chipmunk got the Stripes on his Back*, Nature Myths; selections from *Hiawatha's Childhood*, Hiawatha Primer.

Writing, Spelling, and English: Recording signs of spring in the spring calendar. Reproduction on the blackboard of stories read during library periods. Placing of new words in dictionary. Writing of recipes in cook-books. Writing answers to questions which arise during recitations. Placing of dimensions on all working drawings.

Correlated Number: Much number will necessarily be correlated with the experiments in purification of water. (See outline for Domestic Science in Primary Grades). Through constant use of the thermometer the children will necessarily gain power to count by ones, twos, and tens, and will become familiar with most of the combinations of numbers from 1 to 10. Working plans of the kites and boats made in the shop will be drawn to a definite scale and the amount and cost of material calculated by the children.

Physical Training: The March work will be a continuation of that of February, the children learning to use four hurdles.

The games emphasize the running element in preparation for the outdoor sports to follow later.

References: Estropp, *Handbook of Pottery; International Encyclopedia*, Vol. XII, p. 93, *Invention of Pottery;* A. D. Plougeon, Popular Science Monthly, September, 1896, *Potter's Art Among Native Americans;* Art Thoughts, p. 633, *The Story of Palissy;* H. W. Longfellow, *Keramos;* The Great Industries of the United States, p. 826, *Pottery and Porcelain;* Kate Douglas Wiggin, *The Story Hour; Aunt Martha's Corner Cupboard*, pp. 18-30; Starr, *First Steps in Human Progress;* Sara Wiltse, *Kindergarten Stories;* Jackman, *Nature Study*, pp. 259-262; *Nature Study and Related Subjects*, pp. 110-113, and 122-126; Cooke's *Nature Myths;* Rice, *Course of Study in History and Literature*.

Third and Fourth Grades

Gertrude Van Hoesen

Geography: TRANSPORTATION: In the study of the necessities of a city, one important factor is transportation. This subject will be treated from two standpoints:

I. Transportation in the city.

1. Surface transportation: (a.) Horse-car lines. (b.) Cable-car lines. (c.) Electric-car lines. (d.) Hot-air car lines.

2. Elevated trains.

II. Transportation from the city.

1. The great lines of railroad leading out of Chicago.

2. The steamship lines on Lake Michigan.

Under the first division (transportation in the city), the following points will be considered: Reasons for changing from horse-cars to cables; from cables to electric lines; for building elevated railways. How are the tracks laid for the different roads?

For the study of motor-power the plan is as follows:

1. Visit the power-house, and find the power that runs the cable.

2. What power moves the electric cars? How is it generated?

3. Simple experiments in electricity.

(a.) Rub a stick of sealing-wax with a piece of woolen cloth, and hold it near bits of paper or pith-balls.

(b.) Rub it with silk and cotton, and try again.

(c.) Rub a glass rod with the three materials; hold it near paper or pith-balls, and note results.

(d.) Have children see batteries in use, and how this current generated in previous experiments is made continuous.

(e.) Have practical experiments made with the battery.

4. Visit the electric power-house.

5. Have children discover the principle which underlies the hot-air cars and steam power.

6. Visit the Field Columbian Museum, where the first cable car is on exhibition. Note improvements. Visit especially the section where the modes of transportation in all countries are exhibited.

The second division of the subject (transportation from the city), will be taken up as follows:

1. A visit to the different cars which make up the trains leaving Chicago over our best roads.

2. Comparison of the facilities for travel.

3. A visit to the Pullman car shops.

4. Then, by means of the stereopticon, taking a trip over one of the western roads, over an eastern and a southern road, describing the country, and noting the articles shipped into Chicago at the different points.

5. A visit, if possible, to one of the largest steamboats, letting the children see the facilities for transportation by water.

6. Describing, by means of the stereopticon and pictures, a trip through the lakes and down the St. Lawrence.

Nature Study: WOOD: The children have been using wood in the construction of various articles, and have observed that the use of the article often determines the kind used.

1. What governed the choice of wood in the articles all around us?

2. Examine various kinds, especially as to strength, beauty, and durability.

3. What kind of wood is the most beautiful? On what is it generally used?

4. What kind is the strongest?

5. What kind is the hardest?

6. What kind is the most durable?

7. What kind is the heaviest?

Have children cut and polish a specimen of various woods, showing the longitudinal, cross, and quarter-section of each.

The strength test will be made with specimens of uniform size—14 x ¼ x ¼ inches. The weights, varying from one-quarter to ten pounds, may be bags of sand or beans made by the children. The tests, to be of value, must be performed in a uniform way, the sticks being supported at both ends, and the weights being hung exactly in the middle.

Problems: 1. If — pounds are required to break a stick of pine 14x¼x¼ inches, how many pounds are required to break one that is twice as long?

2. How many pounds are required to break a stick 14 x ¼ x ½ inches? 14 x ½ x ½ inches?

3. Draw sticks in each case. If there is doubt have specimens ready to prove results.

4. Draw the picture of a stick of oak that will require — pounds to break it, if it takes — pounds to break one 14 x ¼ x ¼ inches.

Why are houses painted? After carefully examining specimens of painted and unpainted wood which have been exposed to the weather, the children will weigh and soak both kinds in water and note carefully the result.

[NOTE: Specimens of wood will be collected at the shops of the Pullman Car Company.]

Number: The Growth of Trees.

1. Is there any relation between the strength and durability of wood, and its yearly growth?

2. Examine the growth of common trees. (a.) At the end of the twig. (b.) Yearly increase of the trunk.

3. The children will find last year's growth by means of: (a.) Color. (b.) By looking back from the tip of the twig to the first set of rings.

4. Compare this year's growth with that of last year.

This year's growth will be measured on a definite number of twigs from each tree, and the average growth ascertained. It will

be interesting to compare the growth from terminal and lateral buds. This work will necessitate addition, subtraction, and partition of whole numbers and fractions.

The data obtained in all cases will be published next month.

Manual Training: The children will need boxes to hold specimens of wood. A box will be planned by each child to hold the specimens which he prepares. It will in every case be an original plan, and each child will be held responsible for a working drawing before beginning.

Preparation of wood sections.

History: The work planned for January and February will extend also through March.

Literature: *Tree Myths: Old Pipes and the Dryad*, by Frank Stockton; *Rhoecus*, adapted from Lowell; *Daphne*, from *Old Greek Heroes*, by Baldwin; *Baucis and Philemon*, by Hawthorne. Continuation of myths told to the Greek children.

Dramatic Art: Training in hearing and producing English vowel sounds. Dramatization of stories continued. Poem to be memorized, *The Wind and the Moon*, by George MacDonald.

Industrial Art: The making of a book to be used as a French dictionary.

French: (MLLE. ASHLÉMAN.) March is the forerunner of spring. The children of the Third and Fourth Grades will watch the first awakening of nature and the return of the birds. The French work will center on birds and bird life. The children will dramatize *A Bird Concert.*

The French, in February, has been correlated with the textiles, nature study and manual training. This will continue throughout the year, and each month some of the children's work will be published to show the outcome. The following are the records which the children made of an experiment on food. These records are never made in English. The French language was used instead of the English for this particular experiment.

Je mets de l'iode sur la pomme de terre. Elle devient pourpre. J'en mets sur la laitue. Elle ne change pas de couleur. J'en mets sur le céleri. Il ne change pas de couleur.

J'en mets sur la pomme de terre douce. Elle devient pourpre.

J'en mets sur l'ognion. Il ne change pas de couleur.

J'en mets sur la rave. Elle ne change pas de couleur.

J'en mets sur le chou. Il ne change pas de couleur.

Les légumes qui deviennent pourpres ont de la farine dedans.—NORMAN PREBLE.

Another child recorded the same experiment in a more condensed form:

Je mets de l'iode sur la pomme de terre douce. Elle devien devient pourpre. Les légumes qui ne changent pas de couleur sont le chou, le céleri, la laitue, la rave et l'ognion.—MABEL WHITNEY.

Le Grand Concert

Robin le Rouge-gorge (à sa femme). Cuic! cuic! Ma gentille Babette, l'hiver a fui, voici le gai printemps. Regarde notre maison, le marronnier, il a reverdi, et nos amis, les oiseaux chanteurs, sont revenus des pays chauds. Je vais les inviter à dîner pour demain.

Mme. Babette. Cuic! J'ai peur! Vous savez, Robin, un dîner pour tous ces oiseaux, cela c'est trop cher. Au lieu d'un dîner, organisons un concert!

Robin. Tiens? C'est vrai Babette! Ah! Vous voici, Madame la Oie! Que vous arrivez à propos! Vous avez une plume magnifique! Voulez-vous écrire les billets d'invitation? Madame Babette et moi, nous organisons un concert. Nous voulons y inviter tous les oiseaux chanteurs.

Mme. la Oie. Certainement, Monsieur Robin. Je suis toujours charmée de vous servir.

Mme. Babette (hochant la tête). Voyons qui seront nos invités. Monsieur le Roitelet, Mademoiselle l'Alouette, Madame la Pie, Mademoiselle l'Hirondelle, Mon-

sieur le Serin, Mademoiselle la Linotte, Monsieur Pierrot (Moineau), Madame la Fauvette, Monsieur le Merle, Mademoiselle Mésange. Mais, j'ai presque oublié Monsieur Corbeau et Monsieur Hibou!

Robin. N'oublie pas Monsieur Geai et Monsieur le Coq.

Mme. la Oie. C'est bien, Madame Babette, je m'en vais vite écrire les invitations.

Mme. Babette. Qui distribuera les invitations, Monsieur Robin?

Robin. Le pigeon-voyageur, il est habitué à porter des messages.

Mme. la Oie. Voici, Madame Babette, tous les billets.

Mme. Babette. Je vous remercie! Robin, donne les vite au pigeon-voyageur.

Robin. J'y cours!

Mme. Babette. Veuillez-vous asseoir sur ces feuilles Madame la Oie? Vous êtes fatiguée, je suis sûre.

Mme. la Oie. Merci bien, madame.

Mme. Babette. Ah, voilà Robin!

Robin. Nos invités, viennent en masse. Les voici!

Robin et Mme. Babette. Soyez les bien venus; charmés de vous voir, cuic, cuic, cuic, cuic!

Mme. Babette. Miséricorde! J'ai oublié d'arranger les chaises!

Le Serin. Nous sommes tres bien, madame. Asseyons nous sur cette branche, mes amis.

Le Merle. Mademoiselle Alouette, voulez-vous être maître d'orchestre?

Mlle. Alouette. Je serai charmée.

M. Pierrot. Voyez ce gros champignon blanc. Il sera votre pupitre.

M. Geai. Tu-tu-tu, Madame Babette, j'ai apporté ma flûte!

M. Coq. Co- co- coquericos! Bravo! moi, je suis armé de mon clairon.

M. Hibou. Crin, crin, crin. Ah, et moi, je vais racler du violon — tzine, tzine, tzine!

Mme. la Pie. Boum, Boum, Boum, je battrai du tambour, pan, pan, rataplan! boum!—brr—brr—oum!

Mlle. Mésange. Oh! mes amis, quel fameux vacarme. Qu'il fera beau de s'égosiller à plaisir!

Mme. Fauvette. Ecoutons le Corbeau! Il récite!

Maître Corbeau. Maître Corbeau sur un arbre perché, tenait en son bec un fromage—

M. Rossignol. Maître, vous faites trop de coac, veuillez bien vous taire!

Que voulez vous chanter, Monsieur Loriot?

M. Loriot. Les cerises que j'aime tant!

Mlle. Hirondelle. Et moi, je veux chanter une romance en l'honneur de l'aubépine. J'aime tant ces jolies fleurs blanches au printemps et ces petites baies rouges en automne!

Robin (d'une voix effarée). Sauve qui peut, mes amis! Voilà l'ogre.

Tous les Oiseaux. Aïe, aïe, j'ai peur, j'ai peur!

L'Épervier. Hourra! hourra—ra! Quel bon souper je ferai là.

Le Hibou. Vlan! (*Il applique avec son violon un coup sur la tête de l'Épervier qui tombe à terre.*)

Mme. Babette. Ah! mes amis, mes amis, le Hibou l'a tué.

M. Loriot. Mon pauvre héros, vous avez perdu vos lunettes!

M. Hibou. N'importe! voici, la lune. Je vois très bien sans lunettes.

M. Rossignol. Chantons, chantons, maintenant, notre Romance nocturne.

Art: Illustrations of all the subjects of study in clay, painting, and drawing.

Cooking: (See Miss Cooke's Outline.)

Physical Training: (See outline for First and Second Grades.

Music: (THIRD GRADE.) The Third Grade children who sing rote-songs more easily than the Fourth Grade, were far less suc-

cessful in composing, though they produced little tunes readily at the first trial. The effort to secure more original expression will be made chiefly by means of the study of texts of different kinds. The observation of the rhythmic elements of their own songs, together with the necessary notation, continues. The following texts may be used:

Fairies' Song

By the moon in sport and play,
With the night begins our day.
As we frisk the dew doth fall,
Trip it, little urchins all.
Two by two and three by three
All about, about go we.

—OLD ENGLISH.

Mix a Pancake

Mix a pancake,
Stir a pancake,
Drop it in the pan;
Try the pancake,
Toss the pancake,
Catch it if you can.

—CHRISTINA ROSSETTI.

Sleepy Head

Come, sleepy-head, rise,
And open your eyes;
The clock has struck eight,
And for school you'll be late,
So, my sleepy-head, wake!

Hush-a-bye Baby

Hush-a-bye baby in the tree-top, etc.

Songs: *Pussy Willow's Secret, Fairy Folk*, Songs of Life and Nature; *Spring's Coming, The Naughty Brooklet*, Modern Music Series, First Book.

(FOURTH GRADE.) The children in the Fourth Grade, who were apparently not ready for the original work planned last quarter, have begun to find much pleasure in it now. All attempts to write texts were so unsatisfactory that this part was abandoned, and verses were suggested by the teacher. There had been a beautiful snowstorm during the morning the work was taken up for the first time, and large flakes were still drifting slowly past the windows. Some conversation about the differences in snowstorms led up to quotations about snow. The suggestion that we might sing them was quickly adopted — a text was chosen, and soon most of the children were humming intently. Presently a decidedly tuneful phrase could be distinguished, which was immediately written upon the board, and the other three lines followed quickly. (See page 680, No. 1.) This success encouraged the rest to believe in their own powers. Another text was chosen, and the melody was begun by the same child who composed the first one. Line after line was added by different children, until the somewhat unusual tune, full of musical ideas, was finished. (See p. 680, No. 2.) There was some dissatisfaction in regard to the line, "Ah, but the boys are glad," but no better way was forthcoming, and the octaves at the end were suggested as a relief, "to make it jollier." The two songs were completed in thirty minutes.

Their next effort was a patriotic song, in which the influence of our present ideal of national songs was clearly shown.

Songs: *Pussy Willow's Secret, Fairy Folk*, Songs of Life and Nature; *Spring's Coming*, and Two-part Round, *Sicilian Mariner's Song*, Modern Music Series, First Book.

Fifth Grade

Clara Isabel Mitchell

Cooking, weaving, wood-working, clay-modeling, drawing, and painting continued through the month of February, as throughout the entire year. In connection with the history lessons, experiments with primitive spinning were added, also the binding of the story-book, printed and illustrated for the children of the lower grades.

Cooking: The cooking during the month of February followed exactly the plan outlined in the COURSE OF STUDY for that month. Every individual in the class has made the whole of each recipe with success, and several members of the class have carried out the same work at home.

The time devoted to the cooking is an hour and a half a week, all in one lesson. The apparatus used is a small gas stove on an ordinary kitchen table.

The standard of order proposed for the cooking class is that of mutual helpfulness, and no rules for quiet have been insisted upon, further than that there should be no disturbance, and no distraction from work. Interest has been constant, as marked with the boys as with the girls—and apparently not wholly for the thought of the pleasure of eating the finished product, because in most cases the enthusiasm is greatest when the cooking is done for some one else. Parents and friends have done much to encourage this spirit in the work by their appreciation of the dishes given them for testing.

At the close of each cooking period the children record their experiences in a writing lesson which helps to fix the recipes in their memories, and gives an opportunity for practice in making clear, concise statements of experience.

Reading done in connection with the lessons has been from Stories of Industry: *Sugar, The Making of Sugar Candy, Corn, Wheat and Meadow Grass.*

Weaving: The weaving of cushion-covers and of the curtain has been going on throughout the month of February, and will continue until finished. Many of the class have finished work-baskets of reed, and have lined them with silk.

Wood-Sloyd: Window-boxes one foot wide and one foot deep, made in length to fit the window, have been finished in February, the whole class being represented in the work of constructing the two boxes, each child having done a part of it.

The plan for the loom was made in the study of the large loom in operation. While weaving was going on, each child was asked to make on paper a sketch of that part of the loom which he considered most essential to the process. Different parts were selected by different children, the sketches were compared and discussed, and finally it was decided that the harness was the most essential part of the mechanism. Other parts were then considered in order of importance, and a simple loom is being planned.

Book-Binding: The story of Rip Van Winkle, written by these pupils for the pleasure of younger children of the school, will be printed and bound. The material used will be straw-board, binders' lining paper, and vellum. The leaves of the book are to be folded for sewing in sec-

tions. Covers will be made of two thicknesses of straw-board glued together. The book will be sewed, backed, covered with vellum, and decorated by the children in their own designs, with Higgins' colored inks.

Clay-Modeling: Rip Van Winkle has been the subject for clay-modeling, the children following their own conceptions.

Drawing and Painting: Painting of landscapes, as described under "Science," has been part of the work of each week. Illustrations of the story of Rip Van Winkle have been drawn in pencil and with colored chalks; they have also been painted in water-color for the picture-book.

Drawing of mountains, valleys, and rivers has been a necessary part of the lessons in geography, as a means through which the children may express their ideas to each other and to the teacher.

For Valentine's Day the pupils decided to make valentines for the Kindergarten, and selected Mother Goose rhymes as appropriate subjects for illustration. A drawing in colored crayons on a sheet of gray paper, three by two feet, was made by each child. The preliminary sketches on paper were carefully criticised by the head of the art department before the drawings were begun on the large sheets, and the plan proved helpful and economical.

Suggestions given were made not so much by the teacher's drawing as by insisting that the people of the pictures should be made to look as though they were really doing the things told about in the story. Encouraged in this way, the children found it necessary to pose themselves, and thus get the feeling of the act they were expressing, or to ask another member of the class to assume the pose while they studied it.

The motion of giving the pictures to the Kindergarten lent special interest to the drawing and was a large element in its success. The same sorts of pictures were drawn for the celebration of Washington's Birthday, different scenes from his early life being selected by the children for illustration.

Science: The science study, growing out of the cooking problems, has been chiefly the treating of starch with iodine; examination for starch grains under the microscope, both before and after boiling, making the iodine test for starch in the common vegetables, fruits, and grains.

The work in meterology outlined for the month has been carried out, and the painting of the landscape made each week.

As a help to the work in the evaporation of water and its relation to heat, an experiment was made in the laboratory, in the boiling of water. The problem to be investigated was how water evaporates.

A glass beaker half full of water was held over a flame. The points noted in the experiment were (1) that changes in the water took place instantly after it was placed over the flame; (2) that small bubbles rose from the bottom of the heater (the class was told that these bubbles contained air); (3) that the bubbles grew larger and rose faster as the temperature of the water increased; (4) that vapor rose from the surface of the water; (5) at about a temperature of 212° F. the surface of the water was broken by the large rising bubbles, and that a cloud of vapor rose from the heater; (6) that this vapor could be collected on a cold plate, and would then re-form in drops of water.

The children were told that this change in the form of water from liquid to gas, into vapor, and back to drops of water, is called a physical change, and they saw that heat was the cause of this physical change.

Drawings were made to illustrate this experiment, and to indicate as clearly as

possible the changes which took place at different stages in the evaporation. Written records were also made.

Arithmetic: In continuing the subject of evaporation, which was begun in February, the children will be asked to compare amounts evaporated both fractionally and in the language of percentage. As few of the class will understand the principles of percentage, the subject will be developed and taught at that time.

The class will be told that it is common to speak of $\frac{1}{100}$ of any thing as 1 per cent of it, and that it is usually expressed by the sign 1%; $\frac{2}{100}$ of the water in the experiment is 2%; $\frac{3}{100}$ of the water is 3%, and so on to $\frac{100}{100}$. Any number of per cents of anything means always that number of hundredths; and the number or quantity so referred to is thought of as divided into 100 equal parts. To illustrate, a square will be drawn on the blackboard, divided into a hundred equal squares; ½ will be seen to equal 50%; ¼, 25%; ¾, 75%; $\frac{1}{10}$, 10%.

Thirds, fifths, sixths, sevenths, twelfths, sixteenths, eighths, ninths, fifteenths, fourteenths, twentieths, twenty-fifths, and fiftieths will be found, and expressed in the language and with the sign of per cents. Parts of the dollar will be expressed as per cents of the whole; numbers of centigram and decigram weights used in cooking will be compared to the whole gram in terms of percentage.

In order that the idea of per cents may not be too exclusively associated with the diagram, the dollar, or the metric weights, the children will be asked many quick, simple questions, calling for per cents of feet, yards, gallons, quarts, ounces, pounds, and all other familiar units of measurements. They will at that stage be able, no doubt, to state in the language of percentage parts and comparisons of water evaporated in the experiments.

Addition and subtraction of decimals will be involved in the comparison of per cents. If these processes are not understood and intelligently done, the principle of decimal notation will be simply told and explained: that numbers of whole things or units are expressed by figures immediately to the left of the decimal point—that that placing is an arbitrary matter, planned for convenience; that tenths, hundredths, thousandths, and other decimal parts are expressed by the figures to the right of the point.

By expressing the values of parts of the diagram, cents in a dollar, centigrams in a gram, and other actual things, the children will become accustomed to the decimal scale and will appreciate so clearly the relations of tenths and hundredths to the unit that the operations of addition and subtraction of decimals will offer no difficulties as they present themselves in the problems.

History: The history lessons outlined in the February COURSE OF STUDY will be continued into March, and possibly into April.

The work will begin with a resumé of the children's experiences and observations on the occupations of our people. It will be carried on as a study of occupations, with questions as to the meaning and use to society of these occupations. The teacher's part in the work will be the presentation of problems; the children's will be an attempt to answer. It is hoped that the result will be added interest on the part of the children in industries, and an awakening sense of the social life of our own time. In the development of this idea, appealing to the children's interest in cooking as an activity in which they are engaged, and from which they receive much of their experience, they will be asked:

1. What do the people in this country cook? 2. To what kinds of places could you

go, everywhere, to find cooking being done? 3. Why is all this cooking done? 4. How is it done? 5. From what sources are the fuels obtained? 6. Where should we go to find the people who are engaged in getting the fuel? 7. What are the sources from which the food materials are obtained? 8. Where should we go to find the people producing these things? 9. How are they transported? 10. What people are required in order that these things may be transported from the producer to the consumer?

These questions, and others which are similar, will be asked, until the children are reminded of the armies of people at work in the world, workers skilled and unskilled. They can be shown that a large part of society is engaged in the work of producing food, shelter, and clothing. They will be asked if people have always done these things, and worked in exactly the same way.

1. How did people get their tools with which to work? 2. Who thought about the factories, mills, cities, railroads, banks, offices, and buying and selling? 3. Have they always been in our country, or how did they begin?

By means of stereopticon views and pictures the children will be helped to an image of the great geographical regions of our country—the Rocky Mountain highland, the Mississippi Valley, the Appalachian highland, and the Arctic plain. The questions will then be:

1. What kind of houses would savages naturally build in each of those regions? 2. What would the food be? 3. What the clothing?

For better understanding of life among the Indian tribes, it has been decided to study the Iroquois, Pueblos, Cliff Dwellers, and Eskimos. Beginning with the Iroquois, we shall have pictures of the region occupied by them before the settlements of white people.

1. What places would these people naturally select for homes? 2. How would they build their houses at first? 3. With what implements? 4. Of what materials? 5. What would their food be? 6. Clothing? 7. Then what would be their earliest occupations? 8. What dangers threatened? 9. What means might be taken for protection? 10. What implements would be used? 11. What method of warfare? 12. What leadership? (Read descriptions of Indian life in *Indian History for Young Folks*, by Francis Drake.) 13. What skill in agriculture is required for the raising of corn? 14. Why were the Iroquois not shepherds? 15. Farmers? 16. What would have been the history of farms planned among savages in the Mississippi Valley? 17. What protection could be planned for the Iroquois family? (Read descriptions of stockade and long house.) 18. How could food have been cooked? 19. What might have been used for dishes? Clothing? 20. How might these have been ornamented?

A visit must be made to the Columbian Museum to learn the styles, patterns, and colors of Indian ornaments, and to know more of their culture and skill in the arts.

To get an insight into the religion and mythology of the Indians, the children will be asked to give their own ideas as to how the Indian must have felt toward the great phenomena of nature: the thunder, lightning, storm, rain, snow, frost, heat, the sun, moon, stars, wind, earth, air, plants, and animals. They will be encouraged to make pictures to illustrate their own ideas of these possible myths, and to write them as stories. After this they will read selected portions from Mrs. Emerson's *Indian Myths*, and from the *Report of the Bureau of Ethnology*.

The question of leadership, and the necessity of some form of government, will be discussed, and different methods of choosing and organizing will be compared. Facts in regard to the organization of the Iroquois nations will be learned by reading from Drake, from the *Ethnological Reports*, Vol. V, 1–5, 7–10, 13–15, and from Fiske's *Discovery of America*, Vol. I.

Throughout the course of lessons the children will be making attempts at the same primitive arts as those about which they are studying. They will make baskets, line some of them with clay, and test them in fire; model simple dishes; make pouches

belts, or other small, useful articles of leather; spin with the spindle; weave in the Navajo style; make miniature long house and stockade; dress an Indian doll; and draw, paint, and model to illustrate Indian life, myths, and literature.

The study of the Pueblos, Cliff Dwellers, Mound Builders, and Eskimos will be taken up in the same way, and according to a similar plan.

Geography: (WALLACE W. ATWOOD.) The work in geography followed the general plan outlined in the February number. The aim was to add as much as possible to the images which the children had of the North American continent, and to emphasize the relation of man to his environment.

This study was carried on largely through the use of pictures and stereopticon views. When a mountainous region was taken up for consideration the children were encouraged to imagine themselves wandering among the mountains represented on the screen before them. An imaginary day's journey was made to the top of some high peak. The scenic features were noted, the changes in vegetation, with increase in altitude, the tree line, the broken or angular condition of the rock near the summit, the snow-cap, and small glaciers, all discovered by the pupils.

The discoveries made in such a trip called forth a great many questions. The children wanted to know the explanation of what they saw, and numerous discussions arose. Thus, a child, noticing that the mountains before him were made of great layers of rock, asked how the layers all got there, and of what they were made. Such questions are all that is needed to set the whole class at work to enlighten the ignorant member. The lesson which follows is not a short one, and it may take several periods before the story of the sandstones, limestones, shales, and conglomerates, from the time when the materials were deposited in the sea, through the period of uplift and sculpture, is worked out by the class.

Some child is sure to see the loose material at the base of the precipices, and another question suggesting the story of weathering and erosion is before the class.

One after another come the queries which lead to as full a study of the physical aspects of the region as is deemed advisable. Then if the student imagine himself settling in such a region, problems arise as to where to build his house, and of what material; what food would be available; what clothing; what occupation might be pursued, where towns or cities would develop in such a region, if at all; what time would be left for study and culture.

During the month of March in correlation with the work in history, New York State and the Mississippi Valley will be studied as the home of certain tribes of the American Indians, and the southwest portion of the United States as the home of the Pueblo Indians and the Cliff Dwellers.

Speech, Oral Reading, and Dramatic Art: Indian myths will be read, studied, and possibly dramatized, as suggested in the Fifth Grade outline of the February COURSE OF STUDY. Scenes illustrating Indian life will be represented by the children as the lessons and discussions develop. Occasion for the presentation of dramatized story or lesson is furnished by the morning exercises and grade entertainments, in which one class is invited to visit another. At these times the class which is to entertain other people may choose a story they have studied, discuss the method of giving it, plan staging and costumes, and write dialogue.

For example, the class studied Irving's *Rip Van Winkle* in January, with Miss

Martha Fleming. The story was first read to the class by the teacher, who then asked what parts of it would make good pictures. Each child told the part of the story which appealed most strongly to him, and was allowed to make a drawing of it on the blackboard. The children were interested in their own pictures, and urged the head of the art department to make a drawing for the room. They then asked for materials like those used by the art teacher, and made large drawings on gray paper, with colored crayons.

The teacher then suggested that they tell the story to people who would enjoy it, and the class decided to write the story, carefully illustrate it with drawings or water-colors, bind it, and give copies to the lower rooms as story-books.

In answer to Miss Fleming's question as to whether there were any other way in which the story might be entertaining if told, the children proposed dramatization and modeling in clay. As the entire class was enthusiastic in the desire for both these means of expression, Miss Fleming encouraged a short discussion as to ways of making scenery, getting up costumes, and writing the play. She asked for the list of characters needed, and the scenes which should be represented.

The class was then divided into committees which were to make plans and report on the preparation necessary for giving the play. These committees reported on scenery, costumes, and appearance of characters, even to the dog; preferences were given as to who should take each part, and as to who should write the speeches for the different characters.

These reports were discussed, commented upon, criticised, and finally made over and corrected until all stood as approved by the class. The play then will be the children's own idea expressed in their own way.

The teacher's work in giving the play will be to encourage freedom and naturalness of expression, clear enunciation, and to insist upon effective staging. This will be done by holding the children to the ideal of making the story clear to the audience.

The committees decided to indicate the Catskill scenery by means of large drawings in colored crayon; the costumes were to follow descriptions in the book as closely as possible, and to be picked up at home or made in school, each child furnishing material for his own. The part of the dog, Wolf, to be sufficiently intelligent, was to be enacted by one of the children covered by a fur rug, the tail operated by a string.

The scenes chosen were: I. Rip at home. II. Meeting the dwarfs in the mountains. III. Waking after the sleep, and return to the village. The characters were: Rip, the dog, Dame Van Winkle, Hendrick Hudson, a few dwarfs, a few children, an innkeeper, two or three men, and Rip's grown son and daughter.

Music: Individual singing, begun last month, will be continued as a means of further development of independent self-expression. Original work will be attempted. (See other grade outlines.)

The following verses will be given to the children from which to choose:

Our Heroes

We love the heroes of our land,
Whose names shall live in story;
The wise in heart, the strong of hand,
Whose life and death were glory.

The Blacksmith

Success to the smith in his forge!
Long life to the smith in his forge!
Sing, all ye good fellows,
Tongs, hammer, and bellows,
Hurrah for the smith in his forge!

A Song of Praise

Let us with a joyful mind
Praise the Lord, for He is kind;
For His mercies shall endure,
Ever faithful, ever sure.

Song of Labor

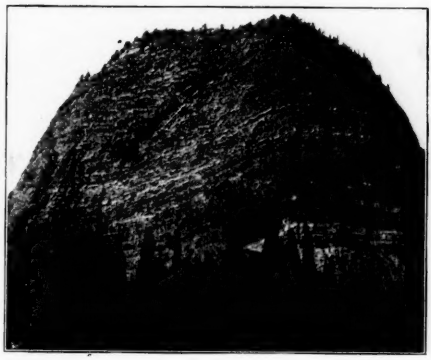
Labor's strong and merry children,
Comrades of the rising sun;
Let us sing some songs together,
Now our toil is done.

Texts are selected for various reasons; in all cases the first requirement is perfect simplicity in the form; in some the subject may seem valuable enough to outweigh considerations of literary value; in some an idea vividly and tersely expressed, or a verse having a rhythm plainly suggestive of melody, decide their usefulness. A better understanding of the value of the music and its place in relation to the words will come from attempts to put them to music. Various facts in regard to the appropriateness of the melody will come to light, which will add to general musical intelligence.

German: (DR. BENIGNUS.) In order to effect a close correlation of German with the other subjects of instruction, and to teach German as English is taught in the Institute, the study of mountains has been selected for this month. With a view to object-teaching, the pupils have learned, under the direction of the teacher of geology, to read from pictures, and to compare the observations thus made with those of their field-trips. The aim has been to have the pupils use the results of their field-trips as a key to the history of the regions shown in the pictures. The following questions and answers, adapted to the ability of the pupils, will serve as reading matter and suitable exercises in conversation:

Betrachtung über die Bildung von Gestein und Berg

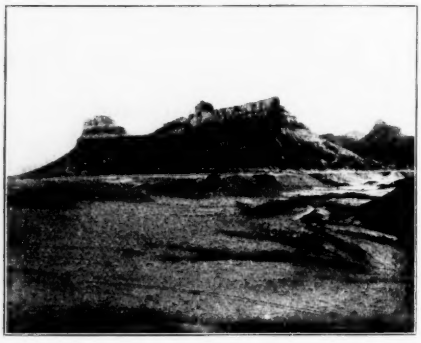
Die Schüler sehen, dass die Gesteine in Lagern sind. Was heisst das? Wie entstanden solche Lager? Die Schüler bemerkten auf den Klassen-Ausflügen, dass verschiedene Stoffe in den Michigan-See geschwemmt wurden. Man kann daraus schliessen, dass auf dem Grunde der Seen und Meere Schichten entstehen. Diese Ablagerungen können Gesteine werden, wenn sie verhärtet sind. Bei einer Exursion nach den Dünen am Michigan-See im vergangenen November hatten die Schüler Lager gesehen. Aber diese Dünenlager sind verschieden von den Gesteinslagern. Es scheint somit, dass die Gegend auf dem Bilde einst im Meere war. Was geschah in jener Zeit? Das Meer muss zurückgetreten sein. Wie sah die Gegend aus, als das Meer zurücktrat? Wie würde der Grund des Michigan-Sees aussehen, wenn man das Wasser ablassen würde? Die



Gegend von Chicago war einst unter Wasser. Sie ist flach. Aber wie entstanden Berge aus flachem Land? Der Regen fällt auf das Land und bildet Rinnen oder kleine Thäler. Diese Thäler werden länger, tiefer und breiter. Sie trennen das Land in Hügel und Berge.

Die Berge waren nicht immer da. Werden sie immer bleiben? Was kann man täglich an ihnen sehen? Was bedeutet das lockere und lose Material am Fusse der Berge? Wie kam es dorthin? Der Wind, der Regen, der Frost und der Schnee machen allmählich den Stein brüchig und locker, so dass er niederfällt. Der Berg

wird mit der Zeit ein Hügel. Aber was wird mit dem ganzen Material, das an den Seiten der Berge herunterkommt, und das die Flüsse mit sich in das Meer führen?



Dieses Material bildet wieder Schichten oder Ablagerungen im Meere. Mit der Zeit erhebt es sich. So ist das Land immer in Veränderung. Berge werden gebildet und wieder zerstört.

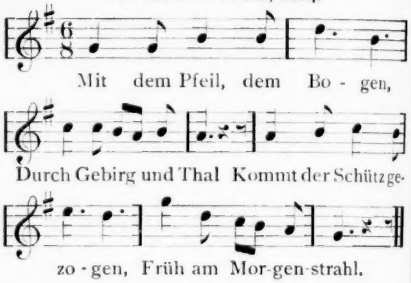
As indicated in the February number of the COURSE OF STUDY, to avoid the tendency of the beginner to overcome his difficulties in reading German by cramming with words and incoherent phrases, and to make reading interesting in class and at home, the books named below have been ordered:

Bilder aus dem Tierreiche, and *Für kleine Tierfreunde*, published by I. F. Schreiber, Esslingen and München; *Im Tiergarten*, and *Bilder aus der Tierwelt*, published by Karl Hirsch, Konstanz and New York; *Der gestiefelte Kater*, published by Theodor Ströfer, Nürnberg; *Märchenstrauss für die Kinderstube*, published by Wilhelm Nitzschke, Stuttgart: Contents: *Aschenbrödel, Goldtöchterchen, Das dankbare Zwerglein, Das Waldfräulein, Dornröschen, Der Mann im Mond, Hänsel und Gretel, Frau Hütt in Tyrol, Die Lilienfee, Das Thränenkrüglein, Die Sternthaler, Das Weihnachtsengelchen.*

Although these books are moderate in price, their illustrations are artistic in execution and appropriate to the text. The attractive little stories they contain will be sure to please.

As to memorizing, little Walter's *Schützenlied* in Schiller's *Tell* was begun in February. It will be finished and sung to the well-known melody of Anselm Weber.

Schützenlied

ANSELM WEBER, 1804.

Wie im Reich der Lüfte
König ist der Weih —
Durch Gebirg und Klüfte,
Herrscht der Schütze frei.

Ihm gehört das Weite;
Was sein Pfeil erreicht,
Das ist seine Beute,
Was da fleugt und kreucht.

Friedrich von Schiller,
"Wilhelm Tell," III, 1: 1804.

All the pupils of the Grammar School will be taught the simple and touching song (Morgenlied), *Die Sterne sind erblichen*, of Heinrich Hoffmann aus Fallersleben, set to music by Joseph Gersbach. Both words and music may be found in this number of the COURSE OF STUDY on page 678.

Sixth Grade

Edith Foster Flint

History: The subject for the month is the Crusades — the movement which contributed so much to the rise of the Italian cities.

I. The topic will not be taken up in separate divisions, such as *The First Crusade*, *The Third Crusade*, *The Children's Crusade*, and so on, but will be treated as a whole, as a great movement which agitated all Europe between the eleventh and the thirteenth centuries, and exercised a profound influence on the politics, commerce, intellectual development, and ethics of the West.

II. Besides inquiring into the causes, the nature, and the effects of the Crusades, the children will study the subject of religious pilgrimage in general, in which they will have an interest because of their acquaintance with Benares and Mecca; and through following the route and adventures of a typical mediæval pilgrim to Jerusalem they will arrive at a conception of the world at that time, both intellectual and physical, and will get a standard for judging the achievements of modern civilization. A scene from *Ivanhoe*, in which the palmer returning from the Holy Land is entertained at Cedric's table, may aid in reinforcing images here.

III. It will be necessary, also, to touch the matter of feudalism, because of its connection with the Crusades themselves, and with chivalry, on which the greatest emphasis will be laid.

It is believed that through a study of chivalry and what it meant to the world, in religious zeal, in respect for women, and in aid to the weak and oppressed, the children will arrive at much that will be in the deepest sense educative. And in connection with the ceremony of knighting, with the tournament, and with knightly deeds, there is a wealth of material, both literary and artistic, which should make the subject very valuable. Thus the tournament from *Ivanhoe*, the exchange of courtesies between Richard and Saladin from *The Talisman*, the story of the *Holy Grail*, *The Vision of Sir Launfal*, and *The Happy Warrior* will add much to the children's conceptions, while Watts's *Sir Galahad*, Carpaccio's *St. George and the Dragon*, and other famous representations of chivalric ideals will reinforce on another side.

References: Fiske, *The Discovery of America*, Vol. I, p. 270-76; *Encyclopedia Britannica;* Myers, *Mediæval and Modern History*, p. 179-221; Bulfinch, *Age of Chivalry;* Boutell, *Arms and Armor of the Middle Ages;* Gautier, *Chivalry;* Hallam, *Middle Ages*, Vol. I; Scott, *Ivanhoe*, *The Talisman.*

Science: The subject is WOOD.

I. The children will first be led to recall the uses of wood with which they are familiar—as its use for fuel, for building material in houses, cars, carriages, for parts of machinery, for furniture, and for decoration.

II. Then will come the consideration of the kinds of wood which they know—probably pine, oak, maple, walnut, birch, curly birch, bird's-eye maple, cherry, and mahogany—and of the different places where each kind is in use.

III. The discussion as to why different kinds should be used in different places will lead to the study of qualities—durability, weight, flexibility, beauty, and expense.

1. Through discussion and the examination of pictures and specimens will be determined the factors on which these qualities depend, *i. e.*, the kind of tree, the individual tree, the part of the tree taken—whether butt-log or top-log, heart-wood or sap-wood—the situation of the tree, the time of year the wood was cut, the way it was sawed, the way it was dried.

2. This will be followed by a consideration of the qualities requisite for different uses. That is, for use in carpentry wood must be of a certain size, to avoid waste of labor and material in cutting; it must be easily worked; be light, firm, and insect-proof; and must season without warping. The cabinet-maker, on the other hand, demands greater hardness; fineness, and beauty of grain; ability to take a polish; toughness, and strength. Here comes in the subject of veneering, with its advantages—less expense and less weight, and the obtaining of rare grains. And its disadvantages— insincerity and lessened durability.

IV. All this, however, would hang in the air if we did not go back to the tree. The stages in the history of a piece of wood will therefore be studied.

1. Portions of a tree-trunk in longitudinal section and in cross-section will be examined, and the markings showing yearly growth noted.

2. Knots will be studied and accounted for.

3. The cell structure of various woods—coarse-grained, hard and soft—will be examined with the aid of the stereopticon, and the effect of cell-structure on the value of wood explained.

4. The environment of the tree will be studied with a view to determining its effect on the strength, durability, and flexibility of its timber.

5. Finally, the class will follow the wood through the processes of chopping, transportation, sawing, and finishing. They will visit the Field Columbian Museum, and if possible, the Pullman shops, Tobey's, Colby's, or Lyon & Healy's.

Sloyd and Number: The Sloyd and number work will correlate readily and valuably with the subject of wood. Such problems as the following, for instance, will be dealt with:

1. The width of an annual layer of one pine-tree was found to be $\frac{1}{16}$ of an inch; of another $\frac{3}{8}$ of an inch. (a) How much more did the first grow than the second? (b) What per cent of increase had the first over the second?

2. One annual layer is $\frac{1}{12}$ of an inch wide. This is 50% of the growth of another. Find the annual growth of the second.

3. The zone of sap-wood in a certain spruce log is 3 inches wide. The diameter of the log is 15 inches. Find area of heart-wood.

4. A piece of oak weighing 86 pounds, when soaked one week weighed 126 pounds. (a) How much did it gain? (b) What per cent?

5. Cherry weighing 73 pounds, when soaked a week weighed 108 pounds. (a) How many pounds were gained? (b) What per cent? (c) What per cent did the cherry gain over the oak?

6. Pine weighing 46 pounds, when soaked a week weighed 72 pounds. (a) What was the gain per cent? (b) Which gained the more, the cherry or the pine? (c) How many per cent more?

7. The woodland area of the United States now covers 450,000,000 acres. What per cent is it of the whole area?

8. Of these forests not less than 25,000,000 acres are cut over annually. If there is no replanting, in what time will this rate of destruction bring our forests to an end?

9. How much will a cork-tree yield in 150 years, if it yields 2,000 pounds every 8 years?

10. In the year 1867, 558 tons of rosewood were imported into Great Britain, half of which sold at 5 cents per pound, and the rest at 10 cents per pound. Find value of the wood.

11. What would a pine sidewalk cost on two sides of a block 600 feet long, sidewalk to be 10 feet wide, lumber used to be 9 inches wide, and to cost $16 per M feet?

References: U. S. Government Report on *Woods; Encyclopedia Britannica;* Stilwell, *One Year in the Eighth Grade*, pp. 39-40.

Geography: In this grade some difficulty has arisen through the attempt to correlate the history and geography closely. To teach the subject of Italy individually, for instance, before teaching that of Europe as a whole, is not possible. Therefore it has seemed best to transpose the original order of subjects planned, and to defer the study of Florence and Venice, together with that of Italy, until after Europe as a whole shall have been taken up. The history in correlation will be that of the Crusades—a movement affecting well-nigh all of Europe. The effort will be to present Europe as a whole in large outlines, emphasizing those portions of the continent which the Crusaders crossed on their journey to the East, as, for example, the valley of the Danube.

I. The children will first observe the relation of Europe to Asia, and note the geographical fitness of the term "Eurasia." A typical landscape in Greece, and one in Asia Minor, will be described and illustrated by pictures, that the great similarity may be quite obvious.

II. Then the more conspicuous facts of outline will be observed—the four peninsulas—Scandinavian, Spanish, Italian, and Balkan—and the great length of coast-line as compared with area noted. The children will, of course, be led to consider the historical effect of this coastal length, and their speculations will be

tested and verified. The fact that this length is due, not to minor indentations, but to the presence of large inland seas, will be dwelt upon, and its commercial importance brought out.

III. Next, the regions of highland and lowland will be located; the former comprising Scandinavia, and, roughly, the Alpine region; the latter comprising the section between these two, stretching from the Bay of Biscay, the English Channel, and the North Sea to the Ural Mountains, and spreading out in Russia from the Black Sea to the Arctic.

1. The principal mountain chains of the southern highland region will be studied—the Alps in the center of the region, the Carpathians in the east, the Balkans in the southeast, the Apennines in Italy, and the Pyrenees between France and Spain.

2. Closely associated with these will be the study of the principal river-valleys—those of the Danube, the Po, the Saône and Rhone, and the Rhine.

3. Lastly, the situation of mountains and seas with reference to climate will be studied, and the conditions as compared with those of North America, of China, and of India, considered.

Throughout the study the children will have constant recourse to sand-modeling and chalk-modeling (in both of which they are now gaining some proficiency), and to the stereopticon.

References: *Encyclopedia Britannica*, Vol. VIII, p. 680–92; *The International Geography*, pp. 123–137; Bartholomew, *Atlas of Commercial Geography;* Reclus, *A Bird's-Eye View of the World*, pp. 17–28.

Painting: The children will represent knights, tournaments, knightly episodes met with in their reading, feudal castles, and other matters connected with chivalry.

Modeling: Many of these same subjects will lend themselves to representation in clay.

Music: Individual singing, with and without accompaniment, will be continued. Ability to convey the ideas and feelings of the song will be the chief point considered, and the criticism of the class will be asked. Two-part songs will predominate, and original work will be attempted. Verses from Kipling's *White Seal* have been selected by the class for their first song. For further choice of texts see Fifth Grade outline.

Songs: *Pussy Willow's Secret*, Songs of Life and Nature; *Hunter's Song*, Modern Music Series, Second Book; *March*, Modern Music Series, Third Book; *Sword Song*, *King Richard Lion Heart*, Songs of Life and Nature.

French: (MLLE. ASHLÉMAN.) Dramatic incidents in connection with the beginning of the Crusades will be adapted from the best French authors and represented by the children.

In the writing, memorizing, and acting out of these incidents, the children's attention will turn to the nature and mechanism of the language, and they will wonder at changes in words, particularly adjectives and verbs, and wish to know the reason for these changes in form. The grammar may now enhance the language. Each need should be responded to as it arises. By these comparisons general and practical grammar may be taught. The acquisition of French will then also facilitate the learning of English.

Une Après-Midi Chez Fadette

(Scène: Une chambre avec une fenêtre qui donne sur la rue. Fadette et Lucile à la fenêtre.)

Lucile. Quel mauvais temps! Regarde donc comme il pleut! Nous ne pouvons guère sortir cette après-midi!

Fadette. C'est vrai. Voilà, regarde la pendule; il est déja quatre heures moins quinze. Retire donc ton manteau et reste. . . .

(*Madame Lemaitre entre dans la chambre.*)

Mme. Lemaitre. Lucile, il pleut si fort, que j'ai téléphoné à votre mère pour lui demander la permission de vous garder chez-nous jusqu' à demain matin.

Lucile. Que vous êtes aimable, madame! Merci pour votre gracieuse invitation.

Fadette. Voyons Lucile, asseyons nous dans ce fauteuil et causons. J'ai une confidence à te faire, quelque chose qui me contrarie beaucoup.

Lucile. J'espère que ce n'est pas grave.

Fadette. Oh, non, pas cela, mais tu sais, Lucile, que les Croisades intéressent mes frères. Ils m'ont priée de leur dramatiser quelques scènes. Nous voulons les jouer à la fête de Papa au mois de mai. C'est bien difficile à faire!

(*On entend du bruit dans le corridor. Les garçons entrent.*)

Lucile. Que vous arrivez apropos! Qui joue la première scène, Fadette?

Fadette. Jean et Henri. Scène à Jerusalem. Jean, voici votre costume. Vous êtes le terrible Hakem, Khalife d'Egypte. Vous persécutez les chrétiens à Jèrusalem. Voici aussi vos lignes. C'est ce que vous direz quand Henri, qui a le rôle d'Aladin, vient vous dire que les chrétiens s'assemblent dans le temple. Aladin, voici votre rôle et votre costume.

Les personnages dans la deuxième scène sont Pierre l'Ermite et le patriarche de Jérusalem, Siméon. Pierre l'Ermite, c'est vous, Guillaume! Vous êtes petit, et Pierre l'Ermite était un homme de très petite stature, mais il avait l'esprit vif, l'œil pénétrant, il parlait avec facilité. Partout où il allait prêcher, le peuple l'entourait en foule. Il rétablissait toujours la paix et la bonne intelligence. Voici votre costume: une tunique de laine, pardessus un manteau de bure, les bras et les pieds nus.

Maintenant, Pierre, vous serez le patriarche de Jérusalem, Siméon. Voici votre costume. Pierre l'Ermite est venu à Jérusalem faire ses prières, il vient vous voir, vous reconnaissez en lui un homme d'expérience. Voici votre discours.

J'ai encore une scène. Celle-ci se passe à Clermont en Auvergne. Ce sera le Grand Concile. Lucile, vous serez le pape Urbain II. C'est vous qui presidez le Grand Concile, montée sur une estrade au milieu d'une multitude. Pierre l'Ermite est debout à côté de vous. C'est lui qui parle le premier. Les enfants Girard et Godet, nos voisins, seront la multitude.

Je n'ai pas encore écrit "scène quatrième." Dans cette scène je compte avoir les illustres chefs des Croisades: Godefroi de Bouillon, Bohemond, et le comte Raymond de Toulouse.

Lucile. Oh, Fadette! je t'en prie commençons la répétition, tu ne nous tutoies plus; ce qui veut dire, que nous sommes de vrais acteurs, n'est-ce pas? Hakem et Aladin êtes-vous prêts?

Jean. Oui. Voilà, commence ton discours, Aladin!

Aladin. Seigneur, les chrétiens vont célébrer la Pâque, les prêtres de l'église frottent d'huile* la chaîne de fer à laquelle est suspendue la lampe au-dessus du tombeau de Jésus Christ.

Hakem (*avec violence*). J'ordonne la démolition de l'église du saint sépulcre, j'ordonne que les chrétiens portent au cou des croix en bois du poids de cinq livres. Je leur défends aucune monture que des mulets ou des ânes. Je confisquerai leurs biens, j'enlèverais leurs enfants!

Aladin. Au retour de l'aurore, Seigneur, un chien mort a été déposé à la porte d'une mosque.

Hakem. Ah! Nous allons accuser les chrétiens de cet outrage! Nous les mettrons à mort comme des chiens! Allez, Aladin, dites aux soldats de se préparer à exécuter mes ordres.

Lucile. Oh! C'est splendide, Fadette. Vite, jouons scène deuxième tout de suite.

Siméon. Mon pauvre ami, je suis désolé. Le spectacle de ces souffrances, de ces ou-

*Par le toit on mettait le feu à l'extrémité de la chaîne. Le feu descendait jusqu'à la mèche de la lampe et l'allumait. Les prêtres s'écriaient alors comme si le feu du ciel descendait sur le tombeau.

trages, que subissent les chrétiens, je ne peux plus le supporter! Si l'Eglise romaine, si les princes d'Occident étaient instruits, par un homme actif et digne de foi, je suis sûr qu'ils essayeraient d'y apporter remède. Je vous supplie, Pierre, venez à mon aide!

Pierre l'Ermite. Saint Père, écrivez donc au seigneur pape Urbain II, et à l'Eglise romaine, aux rois et aux princes! Moi, je ne me refuse point à m'imposer une tâche pour le salut de mon âme, avec l'aide du Seigneur, je suis prêt à aller représenter à l'Occident l'immensité de vos maux, et à hâter le jour de votre soulagement.

Siméon. Pierre l'Ermite, j'accepte votre offre. Que le Seigneur vous bénisse!

Lucile (*soupirant*). C'est moi maintenant! Ah! qu'il fait beau d'être pape quand on peut faire du bien!

Pierre l'Ermite. Le Tyran s'obstine à rejeter tous les crimes sur les chrétiens. Le doute ne fait qu'irriter sa fureur. Il oublie toute mesure, tout respect pour la justice. Les justes, les innocents tous périssent. Levez-vous, mes amis, aux armes, que la pitié de ces pauvres chrétiens vous fasse combattre pour la gloire de Dieu!

Urbain II. Hommes français, hommes d'au-delà des montagnes, nations choisies et chéries de Dieu, très courageux chevaliers, rappelez-vous les vertus de vos ancêtres, la vertu et la grandeur du roi Charlemagne! C'est de vous surtout que Jérusalem attend le secours, car Dieu vous a accordé l'insigne gloire des armes.

Prenez donc la route de Jérusalem, de cette cité royale que le Rédempteur du genre humain a illustrée par sa venu, honorée de sa résidence, signalée par sa mort. Elle vous demande maintenant sa déliverance.

Partez, assurés de la gloire impérissable qui vous attend dans le royaume des cieux!

Fadette. Dieu le veut! Dieu le veut!

German, Sixth, Seventh, and Eighth Grades: (Dr. Benignus.) The pupils are studying mediæval history, the Crusades, at present. German will be correlated with this study. The following outlines, serving as reading matter and for exercises in grammar, will give a survey of the participation of the Germans in the Crusades. On a map, drawn expressly for this study, the route of the German Crusaders will be traced, and the pupils will be taught the geographical features of the countries in question.

Teilnahme der Deutschen an den Kreuzzügen

Deutschland nahm anfangs nur geringen Anteil an den Kreuzzügen. Es war damals unter dem unglücklichen Franken Heinrich IV. von Bürgerkrieg und Parteiwut zerrissen. Zudem ging der erste Kreuzzug von dem Papste Urban II. aus, dem Todfeinde des Kaisers. Allerdings waren unter den Scharen, die vor Beginn des ersten Kreuzzuges ins Heilige Land ziehen wollten, auch Deutsche. Ein Haufe von mehreren tausend Deutschen sammelte sich um einen abenteuerlichen Priester. Aber wilde Mordlust bezeichnete ihren Weg am Main, Rhein und an der Donau. Und schon in Ungarn wurden die Zügellosen grösstenteils von den erzürnten Bewohnern vernichtet.

Beim ersten Kreuzzug, 1096 – 1099, kämpften meist Franzosen, Normannen und Lothringer. Erst am zweiten Kreuzzug, 1147–1149, beteiligten sich die Deutschen. Der Abt Bernhard von Clairvaux bewog durch die Macht seiner Predigt nicht nur den französischen König Ludwig VII., sondern auch den deutschen König, den Hohenstaufen Konrad III., zum heiligen Kriege. Beide Heere, zusammen 140,000 Reiter, brachen 1147 auf, das deutsche Heer etwas früher von Regensburg in Bayern, das französische von Metz in Lothringen. Der Weg ging

der Donau entlang durch Ungarn, dann durch Bulgarien nach Konstantinopel, und von dort hinüber nach Kleinasien. Das deutsche Heer, welches dem französischen weit voraus war, erlitt durch Mangel und fortwährende Kämpfe schwere Verluste. Der Rest vereinigte sich mit den Franzosen. Beide Herrscher versuchten nun Damaskus in dem damaligen Reiche der Seldschucken zu erstürmen. Aber die Einnahme der Stadt scheiterte durch Verrat. Hierauf kehrten beide Könige nach Europa zurück.

Am dritten Kreuzzug, 1189–1192, beteiligte sich Deutschland mit über 100,000 Mann unter der Führung des Heldenkaisers Friedrich I. Barbarossa aus dem Hause der Hohenstaufen. Als Jüngling hatte er den zweiten Kreuzzug mitgemacht; als Greis führte er jetzt die Seinen an. Das Heer nahm wieder den Weg der Donau entlang. Der griechische Kaiser in Konstantinopel verhielt sich misstrauisch gegen Friedrich. Aber nachdem die Deutschen die Stadt Adrianopel in Bulgarien erstürmt hatten, erhielten sie freien Durchzug und Überfahrt nach Kleinasien. Friedrich Barbarossa schlug in zwei Schlachten den Sultan von Ikonium, der damals Kleinasien beherrschte. Als er aber auf seinem Streitross den Fluss Kalykadnus überschreiten wollte, wurde er von Wellen fortgerissen. Er ertrank 1190. Sein Sohn Friedrich, der tapfere Schwabenherzog, führte das Heer weiter über Antiochien nach der Festung Akka am mittelländischen Meere. Dort traf er die Franzosen und Engländer unter ihren Königen Philipp II. Augustus und Richard Löwenherz. Aber schon im Januar 1191 starb Friedrich.

Zum letztenmal kämpften die Deutschen für das Heilige Grab unter dem mächtigen Hohenstaufenkaiser Friedrich II. Dieser hatte einst dem Papst gelobt, eine Kreuzfahrt zu unternehmen. Aber Staatsgeschäfte verhinderten den Kaiser, sein Wort einzulösen. Deshalb belegte ihn der Papst mit dem Bann. Dennoch unternahm der Kaiser einen Kreuzzug, den fünften, 1228–29. Da er sich meistens in Italien aufhielt, so brach er von der Hafenstadt Brindisi auf und kam zu Schiffe vorbei an den Inseln Kandia, Rhodus und Cypern nach Palästina. Er erlangte Jerusalem und den Besitz fast des ganzen Landes, das einst von den Kreuzfahrern erobert worden war. In Jerusalem krönte er sich selbst zum König.

The two poems subjoined are also given as reading matter and for memorizing, especially for the advanced pupils. Friedrich Rückert's *Barbarossa* expresses a passionate longing for the restoration of the German empire in its power and glory under the chivalrous Emperor Friedrich I., called Red-Beard, who was drowned in the river Kalykadnos, in Asia Minor, during the third Crusade.

Barbarossa

Der alte Barbarossa,
Der Kaiser Friederich,
Im unterird'schen Schlosse
Hält er verzaubert sich.

Er ist niemals gestorben,
Er lebt darin noch jetzt;
Er hat im Schloss verborgen
Zum Schlaf sich hingesetzt.

Er hat hinab genommen
Des Reiches Herrlichkeit,
Und wird einst wieder kommen
Mit ihr, zu seiner Zeit.

Der Stuhl ist elfenbeinern,
Darauf der Kaiser sitzt;
Der Tisch ist marmelsteinern,
Worauf sein Haupt er stützt.

Sein Bart ist nicht von Flachse,
Er ist von Feuersglut,
Ist durch den Tisch gewachsen,
Worauf sein Kinn ausruht.

Er nickt als wie im Traume,
Sein Aug' halb offen zwinkt;
Und je nach langem Raume
Er einem Knaben winkt.

Er spricht im Schlaf zum Knaben:
"Geh hin vors Schloss, o Zwerg,
Und sieh, ob noch die Raben
Herfliegen um den Berg.

Und wenn die alten Raben
Noch fliegen immerdar,
So muss ich auch noch schlafen
Verzaubert hundert Jahr."

Friedrich Rückert, 1788-1866.

On January 18th, 1871, Emperor Frederick, Red-Beard, was awakened from the sleep in which, according to the legend, he was spellbound until the German empire should be re-established; for on that day King William I. of Prussia renewed the empire as Emperor William I., in the palace of Versailles.

The end of the song must now be the following:

So hat er lang geschlafen,
Sechshundertachtzig Jahr;
Da flogen fort die Raben,
Und um den Berg ward's klar.

Der Alte ging zu Raste
Vor Wilhelms Kaiserpracht;
Statt Raben auf dem Aste
Der Adler hält jetzt Wacht.

NOTE: Kyffhäuser, in the Forest of Thuringia, to which mountain the legend of the sleeping emperor is attached, is now crowned by an imposing monument to the restorer of German unity, Emperor William I.

Ludwig Uhland's "Schwäbische Kunde" is a lively description of the heroic deeds of a Suabian knight in the struggle against the Turks on Barbarossa's expedition toward the Holy Land.

Schwäbische Kunde

Als Kaiser Rotbart lobesam
Zum heil'gen Land gezogen kam,
Da musst' er mit dem frommen Heer
Durch ein Gebirge wüst und leer.
Daselbst erhub sich grosse Not,
Viel Steine gab's und wenig Brot,
Und mancher deutsche Reitersmann
Hat dort den Trunk sich abgethan;
Den Pferden war's so schwach im Magen,
Fast musst' der Reiter die Mähre tragen.
Nun war ein Herr aus Schwabenland,
Von hohem Wuchs und starker Hand,
Des Rösslein war so krank und schwach,
Er zog es nur am Zaume nach;
Er hätt' es nimmer aufgegeben,
Und kostet's ihn das eigne Leben.
So blieb er bald ein gutes Stück
Hinter dem Heereszug zurück;
Da sprengten plötzlich in die Quer
Fünfzig türkische Reiter daher,
Die huben an, auf ihn zu schiessen,
Nach ihm zu werfen mit den Spiessen.
Der wackre Schwabe forcht sich nit,
Ging seines Weges Schritt vor Schritt,
Liess sich den Schild mit Pfeilen spicken
Und thät nur spöttlich um sich blicken,
Bis einer, dem die Zeit zu lang,
Auf ihn den krummen Säbel schwang.
Da wallt dem Deutschen auch sein Blut,
Er trifft des Türken Pferd so gut,
Er haut ihm ab mit *einem* Streich
Die beiden Vorderfüss' zugleich.
Als er das Tier zu Fall gebracht,
Da fasst er erst sein Schwert mit Macht,
Er schwingt es auf des Reiters Kopf,
Haut durch bis auf den Sattelknopf,
Haut auch den Sattel noch zu Stücken
Und tief noch in des Pferdes Rücken;
Zur Rechten sieht man wie zur Linken
Einen halben Türken heruntersinken.
Da packt die andern kalter Graus;
Sie fliehen in alle Welt hinaus,
Und jedem ist's, als würd' ihm mitten
Durch Kopf und Leib hindurchgeschnitten.
Drauf kam des Weg's 'ne Christenschar,
Die auch zurückgeblieben war;
Die sahen nun mit gutem Bedacht,
Was Arbeit unser Held gemacht.
Von denen hat's der Kaiser vernommen,
Der liess den Schwaben vor sich kommen.
Er sprach: "Sag' an, mein Ritter wert!
Wer hat dich solche Streich' gelehrt?"
Der Held bedacht' sich nicht zu lang:
"Die Streiche sind bei uns im Schwang;
Sie sind bekannt im ganzen Reiche,
Man nennt sie halt nur Schwabenstreiche."

Ludwig Uhland, 1787-1862

Seventh and Eighth Grades

Nott William Flint

Nature Study: Wood, the most widely used material in the world for purposes of construction, is the subject for the month. The class will begin with a study of the various kinds of wood used in their own room—in desks, floor, doors, casings, trimmings, etc.—and afterward of samples brought in by the teacher.

I. Selection of Wood. The question, What leads to the choice of certain woods for certain uses? will afford the class much of original thinking. What kind would you choose for flooring? for staircases? for doors and casings? for framework and joists? (Note: Wood for the framework of a house must be of special size to save waste in labor of cutting and of material. It must be light, stiff, insect-proof, able to season without warping, and easily workable; it need not have grain and color, nor need it be a wood that dresses well.) What kind would you choose for piano? For furniture? For carriages? What are the essential qualities that guide you in each choice?

II. Structure. The study of the structure of wood is by far the most important inquiry in this work, for the answers to all questions depending on this subject will be solved finally with reference to structure. It is important, therefore, that there be in the class-room boards of the staple woods—pine, oak, hemlock, willow, cherry, ash, and mahogany—together with cross-sections of the various trees, the more of these latter, the better. Let the pupils determine and note what are the essential characteristics, and what the essential differences, among all these kinds.

Such questions as these may be asked: Why is oak heavier, stronger, and tougher than pine? Why harder to cut, saw, and plane? What are knots and cross-grains, and why do they weaken timber? Why does wood sometimes check (crack) while drying? Why do some woods split easily and straight, while others curl and twist? Some kinds take on a hard, fine polish, and others finish roughly—why?

These questions would lead, of course, to a consideration of the structure of wood in trees. this study can be taken up at once, or deferred until later.

Let the children study the structure of wood as shown in some characteristic cross-section of a tree: the bark, the sap-wood, the concentric rings, the pith, and the radiating lines (medullary rays). Have them note the difference in color between the pith and the sap-wood; also what function these parts perform in the life of the tree.

A study of the annual annular growth of trees would in itself afford more than enough work for the month. What does the class think the rings are? Why are some rings thicker and some thinner than the average? Why is the pith not always in the middle? Or why are some of the rings thicker on one side? (What would happen to a tree that got better exposure to light and air and better nourishment on one side?) Draw a picture showing how a tree each year molds upon itself a new cone-like sheath.

If you cut a section from the base of a tree and another from one of the big branches would each section show the same number of rings? Why not? If a tree section has fifty rings, a branch thirty, and another branch twenty, at what time in the tree's life did the branches grow?

Give the children different boards and ask them to find out exactly from what part of the log each board was cut. (Note: This can usually be done by completing the rings found in the end of the board.) Would young wood be heavier and stronger than old? Why?

Another good way to study wood structure is to test the strength of different kinds and of different cuts of wood. This may be done by splitting pieces of the same length and size from the different kinds of wood, and then after supporting the ends, by hanging weights from the center till the sticks break. Afterward try the same experiment with pieces cut across the grain.

III. Growth of Wood Forests. Where do the different woods grow? Latitudes?

Pine, oak, and hemlock in the north temperate zone and in the mountains and highlands of the south temperate zone. Mahogany in Central America and the Antilles.

Effect of forests on economy of earth. How do trees affect the mitigation of heat and cold, humidity, enrichment of soil?

Trees afford shelter for man and beast, and are used for fuel and timber, dyes, drugs, and gums.

Logging methods: Show pictures of logging camps. Discuss the great waste of our forests, and the necessity of better forestry laws. What ought the country do to protect its forests?

References: U. S. Government Reports on *Woods;* Jackman, *Nature Study*.

History: Leaving the story of Rome at the Augustan Age, the class will begin to work back to the history of Britain and the English. The transition will be made through the story of the Teutonic migrations. The class, remembering the Germans from their study of Cæsar's second campaign in Gaul, will now be ready to take up the stories of the Teutonic invasions into the Roman Empire.

Let the children read out of class the stories of Alaric, Odoacer, Theodori, Genseric, and Attila, and discuss in class the bearing of what these men did on the government and history of the Roman Empire.

The causes of the invasions will be worked out next—(1) land-hunger, (2) personal ambition of leaders, (3) pressure from the east and north of Pan-Slavic peoples—together with the character of the Teutonic tribes. From descriptions of their tools and weapons, let the class discover the occupations and manner of living of the Teutons. Read here from Tacitus' *Germania*.

Special emphasis should be put on the consideration of the Teutonic tribal government, since out of that government probably came the English folk-moot, and our own New England town-meeting.

What idea or ideas would suggest themselves to such a people—fierce, hardy, and brave—dwelling on the Roman frontier, seeing before them the well-tilled fields of Gaul, and hearing more and more often of the splendor, the wealth, and the luxury of Rome? And if you add to this condition a pressure upon themselves from fiercer and more savage tribes to the north and east, what would inevitably happen?

Then, make a point of the fact that nearly all of these Teutonic invasions were essentially migrations rather than mere military adventures. Let the class see that the migratory movement was not only into Italy and the southern Roman provinces, but also into lands north and west of the Teutonic home-lands; into Scandinavia; along and down the valleys of the German rivers to the sea. Show the class a map on which the probable homes of the Jutes, Angles, and Saxons are indicated, and let them read the story of Hengist and Horsa. This will bring them directly to England and the Saxon settlements on the southeast coasts of Britain.

The question of why Vortigern called in the Saxons to help against the Picts and Scots will raise another question: Why could not Rome protect her colony? The answers to this question will show that the Roman boundaries were no longer extending, but falling back, and that the Roman power was no longer sufficient to maintain the large body of the Roman Empire.

The class will recall that Cæsar was the first Roman to enter Britain with an army of conquest. The character of the British whom Cæsar met can be developed as was that of the Germans; *i. e.*, from descriptions of the weapons, tools, clothing, and houses of the British the class will think out the manner of the Celtic life.

A good deal of emphasis will be laid on the Druidical religion through a study of its form and of its curious temples. See pictures of Stonehenge. The class should learn the difference between a dolmen and a cromlech, and should form their own opinions of what these things meant to the Celtic priests and worshipers. If time permits, some study will be made of early man in Britain, through the relics of stone he has left.

References: Higginson and Channing, *English History for Americans;* Myers, *Mediæval and Modern History;* Kirkland, *History of England; Stories of the Gothic Invasions; Encyclopedia Britannica;* Boyd-Dawkins, *Early Man in Britain;* Waterloo, *Story of Ab*.

Art Expression: Paintings and drawings of stone tools and of implements used by early man in Britain. Water-color paintings illus-

trating the customs of men in the Stone Age. Pictures of the Teutons or Goths.

Geography: The British Islands and Scandinavia will be the geographical study for March and April, in correlation with the history. The class will take up Scandinavia in connection with the story of the Norse invasions of England. The close relation between the larger historical divisions and the natural physical divisions of these countries will be constantly insisted on—that the character of the land guided the long struggles by allowing the defenders to make good resistance against successive invaders. Thus it will be shown that England, Wales, Scotland, Ireland, the Isle of Man, and the Channel Islands, although making a complete political union, are really natural units.

I. POSITION AND EXTENT, in reference to climate. On a large map of the world the pupils will study the 50th and 60th parallels of north latitude, which include the British Isles, and they will carefully note the climatic conditions obtaining in all parts of the earth lying between these parallels. (See Bartholomew's Commercial Map, or any physical map that will show the mean isothermal lines on the earth for July and for January.) Mean isothermal lines for January in England: 40°; South Siberia, 0°; Alaska, 20°; Labrador, 10°. For July: England, 60°; Siberia, 70°; Labrador, 50°; Alaska, 60°.

1. In studying to explain the cause of such great differences in temperature through the same parallels of latitude, the class will discover the importance of ocean winds and currents as modifiers of climate. (Note: In order that the pupils may follow this study as a unit it will be best to have a large class map to show the isothermal lines, ocean winds, and currents.)

2. (a) The gulf stream: its cause, direction, and effect. (b) The Labrador current. (c) The Japan current.

II. GEOLOGICAL FORMATION: Although no great mountain ranges or great rivers are to be found in the British Isles, there is so great a variety of land-forms resulting from remote geological changes and the more recent effect of erosion, that the class will study through these islands: (1) how land surfaces may be formed; (2) the wearing away of land surfaces (erosions); (3) the movements of the earth's crusts up and down (diastrophism).

1. Formation: (a) The western and northern part of Scotland is like Scandinavia in formation. What would this indicate?

(b) South and east of Scotland lie the carboniferous strata of England, and further east and south plains like those of western France. What are and have been the character and occupations of the people living in these various parts? [Note in this connection the density of population in the British Isles. In 1898 population averaged 330 per square mile. But in England density is 500 per square mile. The bare Highlands are almost unpopulated; greatest density of population in the mineral fields, and near certain seaports.]

2. Erosion: How does it come to be that in the British Isles the highest land and best scenery is in the north and west, and the lower and more uniform surfaces to the south and east? The answer to this question and its complementary ones will bring out the whole subject of erosion.

"The northern and western regions have possibly been on the whole land areas since an early geological period; the rocks of the south and east have been formed by the sediments worn off the northern lands and spread out on the shores of seas, or in great fresh lakes." — H. R. MILL.

This subject will be developed in the class by the use of books, pictures, maps, questions, and all the forms of expression.

3. Diastrophism: Let the class study the western coasts of England, Scotland, and Scandinavia on their maps. They will find it island-starred, and indented with long fjords and rias.

If a volcanic country, worn and cut by erosion into a complex system of valleys, should have its coast tilted into the sea a little what would happen? Consider drowned valleys in other parts of the earth.

(To be continued in April.)

References: Mill, *International Geography*; Reclus, *Earth and Its Inhabitants*; Bartholomew, *Atlas of Commercial Geography*; Davis, *Physical Geography*; Tan, *First Book in Physical Geography*.

Art Expression: Chalk-modeling of typical landscapes showing effects of erosion. Water-

color paintings of landscapes typical of British Isles.

Latin: (See Ninth Grade outline.)

Oral Reading: These grades will continue the reading of *Julius Cæsar*.

Music: (MISS GOODRICH.) The results of first attempts at original composition were not very satisfactory; that is, the children were self-conscious and distrustful and the melody finally evolved in the half-hour was trite, monotonous, and somewhat sentimental. This is perhaps partly, though not wholly, due to the unfortunate choice of text. The melody consists merely of a patching together of the phrases they have heard most often. This patch-work, of course, is of no value; it is a mere exercise of memory. Unless the children show some strong desire to go on with this work, and succeed in producing original melodies, it will soon be discontinued.

Songs: *Pussy Willow's Secret, A Man's a Man for a' That*, Songs of Life and Nature; *The First Grass, Winter and Spring*, Modern Music Series, Third Book; *A Song of Praise, Come, Thou, Almighty King*, Modern Music Series, Second Book.

French: (MLLE. ASHLÉMAN.) The French will grow out of the history work:

I. The thought of the reading lessons will be illustrated by the dramatic presentation of the most characteristic events in the lives of Robert the Devil, William the Conqueror, Edward I., and Harold, as shown in the accompanying play, *Robert le Diable et Guillaume le Conquérant*.

II. For French conversation, discussion of the culture and customs of the Normans, and comparison with those of the Saxons.

1. Introduction of French customs and French language by Edward I.

2. Use of the French words by the lord, while the farmer retained the Saxon words.

3. Examples of cases in English where both Saxon and French words are retained: der Ochs, the ox; le bœuf, the beef; das Schaaf, the sheep; le mouton, the mutton; das Kalb, the calf; le veau, the veal, etc.

III. Reading of *Ivanhoe*.

Robert le Diable
et
Guillaume le Conquérant

[AVERTISSEMENT: Robert le Diable parvint à la couronne ducale par un fratricide. Son âme le trouble. Il veut aller à Jérusalem visiter le tombeau de notre Seigneur. Il rassemble les barons de son duché et leur déclare son intention.]

Scène I

(Normandie.)

Robert le Diable, Guillaume (son fils), Barons.

Robert. Barons, vous les grands de mon royaume, je vous rassemble aujourd'hui pour vous déclarer mon intention d'aller à Jérusalem! Je veux aller verser des larmes au sépulcre pour obtenir de Dieu le pardon de mon crime.

Premier Baron (*étonné*). Monseigneur, vous, vous voulez aller à Jérusalem!

Deuxième Baron. Ah! Qu'allons nous devenir sans notre chef!

Troisième Baron. Notre patrie, notre pauvre patrie! Quel désordre nous allons de nouveau subir.

Robert le Diable. Par ma foi, je ne vous laisse pas sans seigneur! Je vous présente mon fils unique, Guillaume. Choisissez cet enfant pour mon successeur si je ne reviens pas de mon pélérinage. (A son fils s'attendrissant). Guillaume, quoique vous n'ayez pas encore huit ans, mon enfant, je vous fais mon héritier!

Premier Baron. Nous sommes satisfaits de jurer fidélité à un prince du sang de Roland.

Robert le Diable (*ému*). Mon fils avant de partir je te meterai sous la protection du roi de France Henri I^er^. N'oublie jamais le sang qui coule dans tes veines, mais, mais (*vivement*) fais mieux que ton père! Sois un jour non, Guillaume le Diable, mais Guillaume le Conquérant!

[AVERTISSEMENT: Le père d'Edouard I., roi d'Angleterre, avait reçu l'hospitalité á la cour des ducs de Normandie.

Edouard avait passé son enfance en Normandie, il ne connaissait guère les mœurs des Anglais lorsque les Anglo-Saxons l'appelèrent au trône d'Angleterre.

Edouard I., d'un caractère simple et généreux, admit avec faveur à sa cour, à son foyer et à sa table les hommes de Gaule, les amis qui avaient adouci sa longue infortune. Il oublia presque qu'il devait sa couronne aux Saxons, et non aux Normands.

Les Normands et les Français fiers de leur instruction, de la culture de leur esprit, de l'amitié d'Edouard, tournèrent en ridicule les coutumes des Saxons moins civilisés.

Les Anglais de race noble, ceux qui voulaient plaire au roi, parlèrent français, adoptèrent les mœurs, les usages, l'écriture, les vêtements, et les jeux même des Normands.

Le duc de Normandie vint aussi á la cour de Londres, entouré d'une suite brillante pour visiter son royal parent.

Edouard le reçut avec affection et le combla de présents, il lui promit même (secrètement) de le faire son héritier.]

Scène II

(Angleterre.)

Edouard I, Harold (fils de Godwin).

Harold. Mon roi, je viens demander la permission d'aller réclamer en votre nom la délivrance de mon frère Vulnoth et de mon neveu Haco, que vous avez exigé comme otages. Vous n'avez plus de motifs pour les garder. Voilà plus de dix ans que Guillaume les retient à sa cour dans une sorte de captivité.

Edouard I. Je consens volontiers à me dessaisir des otages, mais, Harold, ne va pas les chercher toi-même! Je ne veux pas te refuser, mais, si tu pars, ce sera contre mon gré. Je connais bien le duc Guillaume: il te hait et ne t'accordera rien á moins d'y trouver un profit. Choisis un autre ambassadeur!

Harold. Mon roi, vos alarmes, ce sont des rêves; permettez moi de partir entouré de mes joyeux compagnons! Je m'embarquerai dans un port du Sussex.

Scène III

(Normandie.)

Guillaume et Harold couchés sous la même tente.

Guillaume. Harold, j'ai une confidence à te faire.

Écoute! Quand Edouard et moi, nous vivions sous le même toit, il me promit, si jamais il devenait roi en Angleterre, de me faire héritier, de son royaume. Harold, si tu veux m'aider à réaliser cette promesse, je t'accorderai tout ce que tu me demanderas.

Harold (*surpris, troublé*). Ah!

Guillaume. Oui, je vois tu consens. Il faut que tu jures de fortifier le château de Douvres et de le livrer à mes gens d'armes dès que je l'exigerai, ta sœur épousera un de mes barons, toi-même tu prendras en mariage ma fille Adèle! Pour gage de ta promesse, tu me laisseras l'un des deux otages, que je ramènerai moi-même lorsque j'entrerai comme roi en Angleterre.

Scène IV

(Salle de Conseil à Avranches.)

Barons, seigneurs. Guillaume, assis sous un dais, la couronne ducale en tête, l'épée nue à la main. Harold.

Guillaume. Apportez les deux reliquaires, posez les sur ce drap d'or. (*A Harold.*) Je te prie devant cette noble assemblée de confirmer par serment ce que tu m'as promis.

Harold (*pris au dépourvu, hésite, puis étendant la main avec trouble sur les deux reliquaires*). Je jure d'exécuter toutes mes conventions avec vous, duc, pourvu que je vécusse, et que Dieu m'y aidasse!

Les assistants (*répètent*). Ke Dex li dont. Que Dieu l'aide.

Guillaume. Qu'on enlève le drap d'or. (*On découvre une cuve, remplie jusqu'aux bords des ossements et des reliques des saints les plus vénérés.*)

Harold (*frémit, change de visage*). Dieu, une cuve des corps saints! J'ai prêté serment sur des ossements vénérés.

Scène V

(Angleterre, prés de Hastings, 28 septembre, 1066.)

L'armée normande touche au sol de l'Angleterre. Archers, court vêtus et tondus sur les oreilles, après tous les gens d'armes, prêts à combattre, vivres, tous les charpentiers, massons, ouvriers de bras, après le duc. Comme Guillaume met le pied sur le rivage, il trébuche et tombe sur la face.

Ceux qui l'entourent. Dieu nous garde! Voilà un mauvais présage!

Guillaume (*en se relevant*). Que dites-vous donc? J'ai saisi cette terre de mes mains, et, par la splendeur de Dieu, tout est à nous tant qu'il y en aura.

The High School

Latin, Eighth and Ninth Grades: (KATHARINE M. STILWELL.) The students who began Latin in the Eighth Grade and those who began it in the Ninth Grade were found to be so near together in the quality of their work in January that they were put into one class, and January, therefore, was spent in helping them to become more familiar with the ideas and forms of expression used in Lessons I–VII and in the reading lessons of the Eighth Grade.

Lessons IX and X were in consequence not taken up until February.

In working out "The Epitaph of a Fair Roman" it was thought best to add to this a full account of the Roman funeral that the pupils may comprehend the ideas underlying these ceremonies. We wish them to see how, when a Roman died, all the ancestors of the family went to the funeral each wearing his robes of office and bearing the civic wreaths or other symbols of honor he had won, and how the funeral train halted in the Forum to hear recounted the brave and noble deeds of the dead Roman and his ancestors. Thus the pupil may get some idea of how deeply each individual Roman felt his debt to the past and his duty to the future — his obligation to make his own life as noble and useful as the lives of his ancestors had been — so that his descendants also might praise him in the years to come. This "sense of social duty," as it has been called, which is perhaps the most important contribution of Rome to civilization, found its most picturesque expression in this formal procession in honor of the dead.

The description of the funeral ceremonies will be the next reading of the class. This will be followed by the lessons adapted from Viri Romae. In working out this series of lessons, no effort has been made to teach the forms other than as they occur in the reading lessons. Yet form has not been overlooked, for it is the tool by means of which the work is to be done. But it is found that when the content of the lesson seems valuable to the pupil, the effort to gain that content creates an impulse which carries him over the difficulties of the forms. In the recitation, however, the difficult sentences are studied by means of thought analysis. For instance, in the story of Horatius, questions might be asked similar to the following:

What is the subject? Ancus Martius.
Who was Ancus Martius? Rēx.

Of whom? Rōmānōrum.
What did he do? Coniūnxit.
What? Janiculum.
To what? Urbi.
By what? Ponte.
Of what kind? Subliciō.
What was the effect of this? Qui dedit.
What? Iter.
To whom? Hostibus.
When? Postquam rēgēs expulsi sunt.

In this manner the pupils (who have never studied English grammar) have learned to recognize the relation of the different words in the sentence, and to observe the Roman way of expressing constantly recurring ideas. When by means of this analysis, the pupil thinks he comprehends the meaning of the sentence, he reads it aloud (in Latin). The pupils judge his interpretation and compare it with their own. Sometimes one of the class is called upon to give (in English) the meaning expressed by the reader. At other times he is asked to express his own idea of the sentence. Oftentimes the entire lesson is read in Latin, and the class gives its translation in the form of a drawing.

If the oral reading shows that the pupil has not the right idea, he is questioned regarding the constructions, and thus led to find the true meaning of the passage. But in no case is he questioned upon the construction after the translation. The difficulty of the vocabulary is slight, as the method tends to show the pupil that the ability to read depends largely upon his knowledge of the constructions.

Latin Lessons for Eighth and Ninth Grades

Number V

Dē Fūneribus apud Rōmānōs

Rōmānīs erat lūctuōsum sepultūrā carēre. Iūsta nōn cōgnātīs modo sed etiam aliēnīs faciēbant.

Temporibus antīquissimīs fūnera saepe noctū celebrābantur. Posteā interdiū plēumque celebrābantur.

Cum nōbilis dēcessit, ex ēis quī aderant sanguine coniūnctissimus oculōs dēfūnctī pressit. Deinde nōmen mortuī conclāmābant, quā conclāmātiōne eum excitāre volēbant sī modo graviōre somnō premitur. "Conclamatum est."

Tum corpus aquā calidā lavābant quasi dēficientem restitūtūrī. Libitīnārius omnia quae erant fūnerī necessāri asuppeditāvit. Pollinctor, ēius servus, corpus cūrāvit. In ōre nummum interdum posuit. Haec erat mercēs Charontī, Stygis, portitōrī.

Corpus ad diem quartum aut nōnnumquam ūsque ad nōnum honōris causā in atriō servābātur. Amīcī hominem mortuum visitāvērunt. Tūra cremābant. De honōribus, quōs dēfūnctus gesserat, inter sē colloquēbantur. Insīgnia, quae adeptus erat, ostentābant. Rāmōs cupressōs aut pīneōs in atriō suspendērunt. His rēbus factīs, praecō amīcōs ad pompam fūneris convocāvit hīs verbīs: "Ollus Quiris lētō datus. Exsequiās quibus est commodum, īre iam tempus est. Ollus ex aedibus effertur."

Dēsīgnātor pompam ōrdināvit. Prīmī iērunt tībīcinēs. Hōs praeficae quae nēniās cantābant secūtae sunt.

Mimi aderant, ex quibus ūnus partēs mortuī agēbat. Tum vidēbantur imaginēs māiōrum. Eī ēlēctī, quī statūrā et corpore parēs erant māiōribus dēfūnctī, imāginēs gerēbant cēreās et tālem vestem quālem illī māiōrēs ōlim gerēbant. Tum portātae sunt tabulae, in quibus rēs gestae

mortuī erant īnscrīptae. Hās cadāver in lectō iacēns secūtum est.

Lectus plērumque ā coniūnctissimīs aut lībertīs ferēbātur. Eburneus erat et tēctus vestibus strāgulīsque aurō ac purpurā pictīs.

Cōgnātī et necessāriī lectum subsequēbantur.

Vistīmenta lūgubria erant ātra, sed temporibus imperātōrum albis ātra mulierēs mūtāvērunt. Scindere vestem erat sīgnum lūctūs.

Lectus in forum lātus est ubi cōgnātus laudātiōnem fūnebrem prōnuntiāvit.

Aliās cadāver sepultum est, aliās cremātum. Coniunctissimus rogum accendit. Cinerēs collectī in ūrnam conditī sunt. Tum postrēmō dēfūnctum sīc invocābant: "Avē, anima candida, sit tibi terra levis."

Nōnā diē post exsequiās silicernium celebrātum est.

Vocabulary

NOUNS.

sepultūra, ae, f., *burial.*
iūsta, *funeral rites.*
cōgnitus, *known.*
fūnus, eris, n., *funeral.*
nōbilis, *famous, high-born.*
sanguis, inis, m., *blood.*
coniūnctissimus (as substantive), *nearest relation.*
oculus, ī, m., *eye.*
somnus, ī, m., *sleep.*
aqua, ae, f., *water.*
ōs, oris, n., *mouth.*
nummus, ī, m., *a piece of money.*
merx, cis, f., *reward, pay.*
honor, ōris, m., *honor, office.*
ātrium, ī, n., *principal room.*
rāmus, ī, m., *a branch.*
pompa, ae, f., *procession.*
tībicen, inis, m., *flute player.*
nēnia, ae, f., *funeral song.*
mīmus, ī, m., *mimic, actor.*
imāgō, inis, f., *copy, likeness.*
māior (as substantive), *ancestor.*
statūra, ae, f., *size, stature.*
portitor, ōris, m., *ferryman.*
cadāver, eris, n., *dead body.*
lectus, ī, m., *couch.*
lībertus, ī, m., *freedman.*
necessārius, ī, m., *relation.*
vestīmentum, ī, n., *clothing.*
mulier, eris, f., *woman.*
vestis, is, f., *clothing.*
lūctus, ūs, m., *grief.*
sīgnum, ī, n., *sign.*
laudātiō, ōnis, f., *eulogy.*
rogus, ī, m., *funeral pile.*
cinis, eris, m., *ashes.*
urna, ae, f., *urn.*

NOUNS.

exsequiae, ārum, f., *funeral procession.*
silicernium, ī, n., *funeral feast.*
tūs, tūris, n., *incense.*

ADJECTIVES.

lūctuōsus, *sorrowful.*
gravis, *heavy, burdened.*
calidus, *warm, hot.*
necessārius, *needful.*
pār, *equal.*
eburneus, *of ivory.*
lūgubris, *mournful.*
āter, *black.*
tālis, *such.*
quālis, *as.*

VERBS.

careō, 2, *be without.*
celebrō, ī, *celebrate.*
dē-cēdō, 3, *depart, die.*
premō, 3, *press, cover.*
con-clāmō, ī, *cry out together.*
volō, *wish.*
excitō, ī, *arouse.*
lavō, ī, *wash.*

VERBS.

restituō, 3, *restore.*
suppeditō, ī, *provide.*
cūrō, ī, *attend to.*
servō, ī, *preserve.*
cantō, ī, *sing.*
agō, 3, *act, perform.*
videō, 2, *see.*
mūtō, ī, *change.*
scindō, 3, *tear.*
prōnūntiō, ī, *utter.*
accendō, 3, *kindle, set on fire.*
conligō, 3, *collect.*
condō, 3, *store up.*
conloquor, *talk about.*
adipīscor, *obtain.*
sequor, *follow.*

ADVERBS.

noctū, *at night.*
interdiū, *in the daytime.*
quasi, *as if.*
causa, *for the sake of.*
ōlim, *formerly.*
sīc, *thus.*

CONJUNCTIONS.

si, *if.*
aut, *or.*

References: Harper's *Dictionary of Classical Literature and Antiquities*, under *Funus;* Becker's *Gallus;* Excursus, *Burial of the Dead;* Preston & Dodge, *Private Life of the Romans*, ch. I.

Roman History

THE TRADITIONS

Saturn

Sāturnus antīquissimīs temporibus in Italiam vēnit ut Rōmānī crēdēbant. Ibi prope Jāniculum arcem condidit, eamque Sāturniam appellāvit. Hīc Italōs prīmus agrī cultūram docuit.

Latinus and Aeneas

Latinus posteā in eā regiōne rēx erat. Dum hīc rēx est, Trōia in Asiā ēversa est. Unde Aenēas Anchīsæ filius cum multīs Trōiānīs, quī a Graecīs nōn interfectī erant,

aufūgit et in Italiam pervēnit. Ibi quamquam Trōiānus fuit, fīliam Latīnī rēgis in mātrimōnium duxit et urbem condidit, quam in honōrem coniugis Lāvīnium appellāvit.

Founding of Alba Longa

Post Aenēae mortem Ascanius, Aenēae fīlius, regnum accēpit. Hīc sēdem rēgnī in alium locum trānstulit, urbemque condidit in monte Albānō, eamque Albam Longam appellāvit. Eum secūtus est Silvius, quī post Aenēae mortem genitus erat. Eius posterī ūsqué ad Rōmam conditam Albae rēgnāvērunt.

Vocabulary

NOUNS.

regiō, ōnis, f., *country*.
coniūnx, ingis, m. and f., *wife or husband*.
sēdēs, is, f., *seat, throne*.

VERBS.

crēdō, 3, *believe*.
condō, 3, *build, found*.
ēvertō, 3, *destroy*.
aufugiō, 3, *flee*.

ADVERBS.

prope, *near*.
ūsque, *even*.

RELATIVE.

ut, *as*.

ADVERSATIVE CONJUNCTION.

quamquam, *although*

Points in Grammar

The passive voice.
Use of deponent verbs.
The indicative mode.
Determinative clause with qui or cum.
Clause of reason with quod.
Adversative clause with quamquam.
Clause of situation with dum.

Ninth and Tenth Grades

Latin, Ninth and Tenth Grades: (ALLEN W. GOULD.) More time than was planned has been taken in studying the geography of Gaul and Germany, and the condition of the natives as shown in Cæsar's Gallic War, and so the work laid out for January and February will probably take up most of March.

The practice in using Latin has consisted principally in giving answers in Latin to questions based on the text, like the following:

1. Tell in Latin who the three different peoples of Gaul were and what their boundaries were in mountains and rivers.
2. Tell in Latin what the two chief classes were among the Gauls, and state briefly the duties and privileges of each.
3. Tell in Latin how the young men prepared themselves to be Druids.
4. Tell in Latin what reasons Cæsar gave for the Druids' custom of memorizing their verses. What reason would you give?
5. Tell in Latin what the Gallic custom was regarding the wife's dowry.
6. Tell in Latin what a Gaul was required to do when he heard any news of importance to the state.
7. Tell in Latin how the Germans managed in regard to the cultivation of the ground. What reason would you give for this custom?
8. Tell in Latin what reason Cæsar gave for the existence of uninhabited tracts of land about each German tribe. What reason would you give?

The students are also asked to put back into Latin, without the use of their books, some of the passages which they have translated into English.

Greek, Ninth and Tenth Grades: (ALLEN W. GOULD.) During this month the beginners in Greek will probably complete the lessons in Gleason & Atherton's *First Greek Book*, as well as read some thirty pages of Moss' *First Greek Reader*, taking those passages that throw light on Greek life and history. The students will also be asked to make themselves familiar with the chief events in Greek history, using some adequate book for that purpose, so that they may have a framework in which to fit the new ideas they get from the Greek. They will also be expected to make a map of Greece, with mountain ranges and sea indentations, as the physical framework of the history and as one of the causes of that history.

The Greek composition will consist partly of the material found in the *First Greek Book*, and partly of brief answers in Greek to questions about the subject of their study, like those given in the December COURSE OF STUDY, pages 318–324.

German, Ninth and Tenth Grades: (DR. SIEGFRIED BENIGNUS.) In February, German was correlated with Greek history—that is, with the age of Pericles. In March, the pupils will be given a survey of Grecian art, and its influence on Europe. They will report verbally and in writing, thus furnishing opportunity for correcting oral expression and for composition work.

The topics for special exercises in the language of every-day life will be the city in general. Reading in the *Picture Book without Pictures* is continued in the way shown in the former numbers of the COURSE OF STUDY.

For memorizing, the pleasing *Meeresabend*, by the poet Count Strachwitz, has been selected.

Meeresabend

Sie hat den ganzen Tag getobt
Als wie in Zorn und Pein,
Nun bettet sich, nun glättet sich
Die See und schlummert ein.

Und drüber zittert der Abendwind,
Ein mildes, heiliges Weh'n;
Das ist der Atem Gottes,
Der schwebet ob den See'n.

Es küsst der Herr aufs Lockenhaupt
Die schlummernde See gelind
Und spricht mit säuselndem Segen:
"Schlaf' ruhig, wildes Kind!"

Moritz Graf Strachwitz, 1822–1847;
"Neue Gedichte."

French, Ninth and Tenth Grades: (LORLEY ADA ASHLÉMAN.) The Ninth and Tenth Grades will dramatize *La Dernière Classe*, by Alphonse Daudet. The work in grammar will develop naturally, as need is manifested for it by the students.

Physiography, Ninth Grade: (WALLACE W. ATWOOD.) Subject: MOUNTAINS. This work will be introduced through the study of pictures, stereopticon views, maps, and models. The problems which arise during the observational study will serve as a basis for the systematic consideration of the different types of mountains.

In correlation with the history and language work of this grade, special attention will be given to the mountains of Europe and the Mediterranean region.

1. Block Mountains: Study the Great Basin region, the Vosges and Black Forest mountains, and the mountains of Palestine and Moab. (Refer to figure 101 in Davis's *Physical Geography*, and to figures 64, 65, and 66 in James Geikie's *Earth Sculpture*.)

a. Origin and growth of block mountains.
b. Kinds of faults found in such mountains.
c. Drainage and erosion.
d. Settlement and development in regions chosen for illustration.

2. Folded Mountains: Study the Jura, the Middle Carpathians, the Pyrenees, the Alps, and the Appalachians. (Use figures 105 and 118 in Davis, and figures 40 to 53 inclusive in Geikie.)

a. Origin and growth of folded mountains.
b. Analysis of folds in mountains.
c. The general topographic form during youth.
d. The drainage in regions of young folded mountains.
e. Life among the mountains.
f. Influence of mountain barriers upon climates and population.
g. The destruction of folded mountains.
h. How could the former presence of great mountains be proved?

The deposition and mining of ores may be considered, and also the influence of mineral wealth upon the settlement and development of a region. In this work the students should become familiar with the common ores of iron, lead, copper, and zinc.

3. Domed Mountains: Based on the study of the Black Hills of South Dakota. (See figure 106 in Davis's *Physical Geography*.)

a. Origin and growth.
b. Erosion and general degradation.
c. The structural relations in the field which help in working out the history.

d. Ore deposits in the Black Hills and their influence on the settlement and development of the region.

4. Subdued Mountains: Examples are found in the Blue Ridge and other mountains of North Carolina, in the mountains of Wales, and among the heavily wooded mountains of central Europe, such as the Schwarzwald of Germany.

5. Worn-down Mountains: The Piedmont belt of Virginia is an excellent example. Many regions of worn-down mountains have been uplifted, causing a quickening of the streams and consequent dissection. Examples of such regions are found in the Slate mountains of Germany, in the New England highlands, the Appalachian mountains, the highlands of Scotland, and the Erzgebirge of Germany.

6. Embayed Mountains: Study coasts of Norway, Scotland, Greece, British Columbia, and southern Alaska.

Art Expression: Chalk-modeling by the students is introduced into nearly every lesson. Water-colors and crayons are also used in reproducing mountain scenes.

References: Davis, *Physical Geography;* Geikie, *Earth Sculpture, Text-book on Geology,* and *Elementary Lessons in Physical Geography;* Chapter on *Folds* in *Principles of Pre-Cambrian Geology,* U. S. G. S., 16th Annual, and Van Hise, *Earth Movements,* Trans. Wis. Academy of Sciences, Vol. XI; Topographic maps.

Greek History, Ninth, Tenth, and Eleventh Grades: (GUDRUN THORNE-THOMSEN.) The War with Persia and the Age of Pericles: The aim will be to present conditions that the children may form vivid growing images of a war in which Greek civilization and Greek institutions showed their superiority in strength and vitality over those of the Orient; also of a period in Greek history that more than any other reflects the tendencies and ideals of Greek culture.

Materials for study will be found in extracts from contemporaneous writers, in relics of the time, such as objects of art, buildings, etc. Pictures, stereopticon views, maps, and models will be used freely. The Art Museum will be visited.

Method: I. The pupils will trace the further development of Greek institutions during this period, and see how the growing antagonism between democracy and aristocracy, as exemplified by Sparta and Athens, expressed itself in the foreign policy of the Greek states.

We shall make a close study of culminating events that are full of dramatic action. By focusing the attention on such events the pupils will have a motive for and an interest in studying the causes which led up to them.

II. Attention will be given to the study of prominent men who in their lives reflect the spirit and ideals of the time, and who by their moral and intellectual qualities have a determining influence upon contemporary society—Miltiades, Aristides, Themistocles, Pericles.

III. The Battle of Thermopylæ: This battle will be the starting-point for our study of the Persian War, as it presents in a few powerful strokes a picture of Greek spirit, and contrasts it with that of the Persians. The pupils will be asked to study the battle from their text-book, and from other books.

1. We shall have a chalk-modeled map of the Balkan Peninsula, and also a model in sand of Thermopylæ, with the surrounding country, and as many pictures as possible. By the use of this material, and by descriptions, the pupils will image the geography of Thermopylæ. With this geographical basis, we shall then proceed to discuss the battle itself. The pupils will picture the Persian horde as it sweeps southward through Thessaly.

2. Why is this tremendous army advancing toward Thermopylæ? Compare the Persians with the Greeks as to organization, numbers, and equipment. As the battle proceeds, the spirit which animates the Greeks will be noticed, also how the Persian officers scourge their men to battle. Extracts from Herodotus will be read in class.

IV. Having witnessed, as it were, the battle of Thermopylæ, and having felt something of the spirit of the Greeks in their struggle against the Persians, the pupils will have for their next topic of consideration the causes of the Persian invasion and the events which preceded the battle.

V. The battle of Salamis will be studied in a similar manner. The geographical background will be worked out, bringing out the position of Salamis in relation to the mainland, the strait with its narrow entrances, etc. Description of an ancient vessel and how used in naval warfare. Read in class extracts from Æschylus. The Persians.

VI. Points for discussion:

1. Character of the Persian Empire and the history of its formation.

2. Comparison of Greek and Persian civilization as to government and social conditions.

3. Causes of the struggle between Greece and Persia.

4. What qualities did the Greeks display in this war, and for what did they fight? The Persians? Spirit shown by the Greeks? By the Persians?

5. What advantages did the Greeks have? The Persians? Disadvantages?

6. Attitude of Sparta and of Athens during the war.

7. Make a comparative study of Miltiades, Themistocles, Aristides, Pausanias. Which character do you like best? Why?

8. To what do you attribute the success of the Greeks?

9. What effect did the Persian wars have upon Greek civilization? What effect upon mutual relation of Greek states?

VII. The pupils will imagine themselves living in Athens at the time of Pericles. They will make a study of the costumes and the houses of the time, and give descriptions of the daily life of the Athenian in private and in public. What were his duties to the state and to the family? What education did he have for meeting these requirements?

1. Visit to the harbor of Athens as it appeared at that time, with its commercial and naval fleets, docks, and storehouses. Use of the long walls. Imports and exports of Athens. Naval supremacy.

2. Visit to the theater. Model in clay of Greek theater in order to show the position of the stage and the auditorium. Part played by the theater in the daily life of the Athenians; how they would get admission. In this connection we shall give some attention to the Greek drama and its development. Quotations from Æschylus, Sophocles, and Euripides. The works of these dramatists will be considered more fully in next month's work.

3. Acropolis. Present pictorial map of Athens showing position of Acropolis. By pictures, descriptions, and models help the children to a clear, vivid image of Acropolis as it rises from the plain. The pupils will ascend the Propylæa. View of Athens from Acropolis: the plain with the city, the surrounding hills, Peiræus and Salamis in the distance.

4. The stereopticon will be used to give an idea of Greek architecture and sculpture. Characteristics and principles of Greek architecture: the Doric, Ionic, and Corinthian styles; the different parts of the Greek temple; the Parthenon frieze.

The children will model the Parthenon in clay, and present the model to the school museum.

What public or private buildings have you seen in the Greek style? Study some of the most prominent sculptures of the time. Phidias. Evolution of Greek sculpture. Compare with Egyptian sculpture. Relation of art to religion. What qualities of the architecture and sculpture of this period do you admire? Visit to Art Museum. (See Mr. Duncan's outline on Art.)

VIII. The pupils will visit the assembly and the jury courts and listen to the great orators of the time. Further development of democracy in Athens, and changes in the governing bodies during this period will be noticed. What would be your political rights as citizens of Athens? Comparison of Greek and American citizenship. Compare our modern city and its social and political institutions with ancient Athens.

IX. Pericles as the typical Athenian: His personal character. His dominant influence in Athens and how obtained. Read extracts from his funeral speech. The pupils will commit to memory this speech and deliver it before the class. Discussion of social and political ideas as shown in this speech. Read in class quotations from Plutarch; also from Thucydides.

X. Points for discussion:

1. In what does our democracy differ from that of Athens?

2. Effect of slavery upon Greek life.

3. What qualities of the Athenian would you like to possess?

4. What was the value of the leadership of Pericles? In what did it fail? Would it be possible for a single man to attain a similar prominence in our democracy? How was it possible in Athens?

5. What is the value of the age of Pericles to our modern civilization?

Topics for Written Expression: The Athenian Citizen; Acropolis; A Visit to Athens at the Time of Pericles; Biography of Pericles, Themistocles, etc.

Art Expression: Clay model of Parthenon; sand model of Athens with Acropolis and harbor; drawings of Greek architecture, ornaments, and sculpture; drawings of ancient vessels; paintings of Greek costumes.

References: See list published under History outline, December COURSE OF STUDY; Blümner, *Home Life of the Ancient Greeks;* Grant, *Age of Pericles.*

Experimental Course in Astronomy, Ninth and Tenth Grades: (GEORGE W. MYERS.)

EXPERIMENT NO. 1. To find the length of one's pace.

(a.) Stake out a square acre on level ground and pacing its perimeter and diagonals two or three times, determine the length of your pace.

(b.) Measure with the tape and stake out on a 5% or 10% grade a line of 100 feet or 200 feet, and step it not less than five times both upwards and downwards. Determine the length of pace both upwards and downwards, and compare the lengths with each other and with the lengths for level ground.

EXPERIMENT NO. 2. To find the angle of the fingers and hand held at arm's length.

(a.) Extending your arm horizontally in front of your face, measure the distance from your eye to the palm of your hand, the arm being fully extended and the hand being bent at a right angle to the axis of the arm. Measure

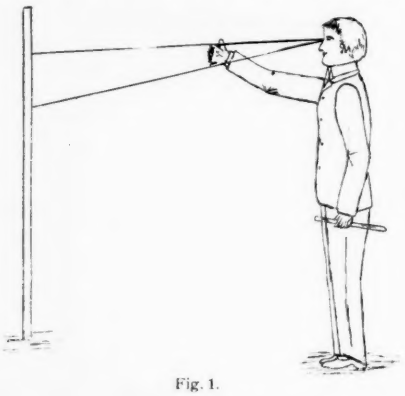


Fig. 1.

now the breadth of the individual fingers, their combined breadth across the joints just beyond the knuckle, and the breadth of the palm across the knuckles. Construct on paper isosceles triangles having the hand and separate finger breadths as bases, and all having the distance from the eye to the middle of the palm as altitude. Measure the vertical angles of these triangles with a protractor, and keep a record of their values for your own hand and arm.

(b.) Set a flagpole or stick behind your hand, and at a measured distance from the eye, and measure the spaces just covered by your separate fingers and palm on the pole. Using these as bases construct to any convenient scale isosceles triangles as before. Obtain the angles with a protractor, or trigonometrically as in (a).

[NOTE: Experiments 1 and 2 will furnish convenient standards for obtaining estimates of lengths of lines, distances to remote objects, and sizes of angles which will be considerably better than mere guesses.]

EXPERIMENT NO. 3. To find the slant of the sun's rays to the plane of the horizon.

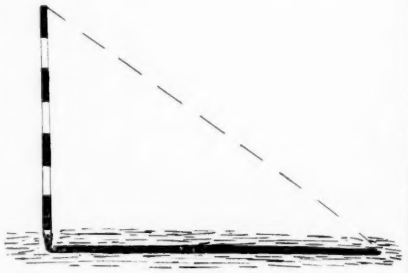


Fig. 2.

(a.) Holding a stick vertically, measure its height and the length of its shadow, and plot to any scale the measures on two lines drawn perpendicularly to each other. Connect the ends, and measure with protractor the angle opposite the line representing the height of stick.

(b.) With the aid of a plumb-line held at the top of the stake and passing through a narrow ring near the bottom the stake may be held more nearly vertically. The plumb-line may consist of a brickbat tied to a string.

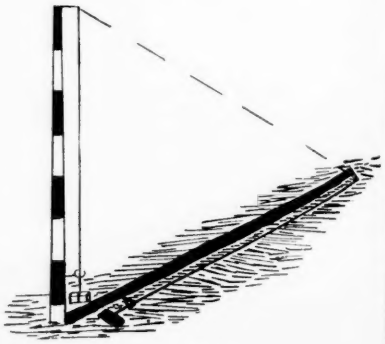


Fig. 3.

(c.) Perform the experiment with the plumb-line supplied with a bead (piece of cork) sliding with gentle friction up and down the string. Measure and use the height of bead and distance of its shadow from point directly under the bob (brickbat) as height of stick and length of its shadow were used above.

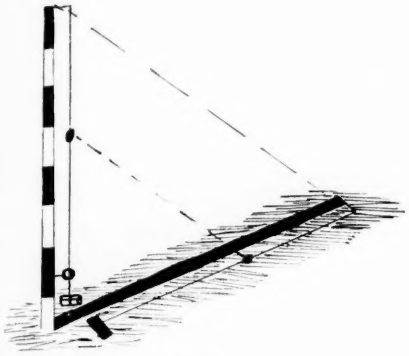


Fig. 4.

[NOTE: These experiments will furnish more accurate values for the angle, if treated trigonometrically, as may be done with older students.]

EXPERIMENT NO. 4. To find the height of a tree, building, or other object, by the length of its shadow.

(a.) Measure the lengths AE and CD of the shadows of the building and of the stick. Then if AB=h, we have

$$h:CF=AE:CD, \text{ or, } h=\frac{AE}{CD}CF.$$

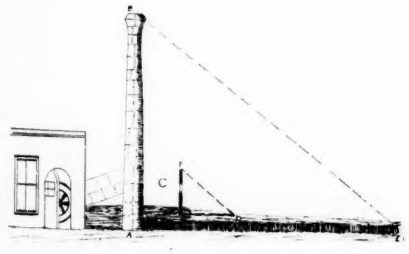


Fig. 5.

EXPERIMENT NO. 5. To find the horizontal, or oblique, dimensions of an inaccessible object, distances being known, and conversely.

(a.) Place yourself approximately (by guess) in the perpendicular at the mid point of the dimension (DE) to be measured, and setting a stake at your station (A), get behind it and line in with the ends of the dimension to be found at distances 10 feet, 20 feet, or 100 feet from this station two other stakes (C and B), and measure the distance, BC, between these two stakes. The distance from your station to the ends of the line DE being known, the proportion of (a) Experiment No. 4, furnishes the solution; thus h:BC=AB:AD.

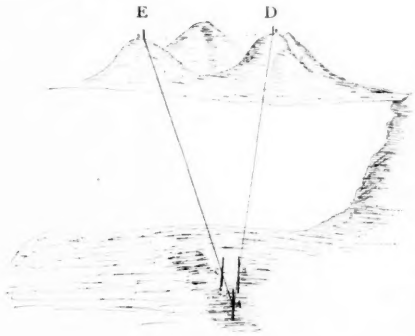


Fig. 6.

[REMARK: If the dimension is unknown, the distances are thus obtainable.]

(b.) This experiment may also be executed with an extemporized plane table, consisting of a flat-topped camera tripod, to the top of which a light drawing-board is screwed, the alidade (ab., Fig. 7), being made of a foot rule carrying two vertical needles for sights. The leveling up may be done with a 25-cent level to be had of any hardware dealer, or with a home-made level consisting of a small glass phial nearly

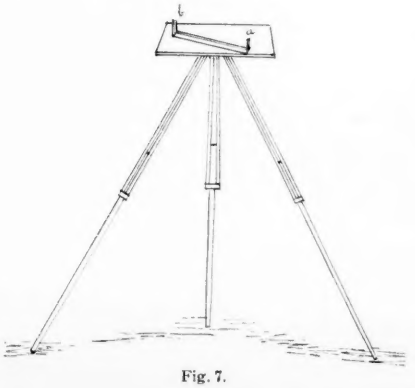


Fig. 7.

filled with alcohol, the bottle being countersunk in a block of wood.

(c.) For an oblique dimension, by sighting along the top of the board (B) the plane of this board may be brought into the plane of the line to be measured and the line of sight to the middle of the board by adjusting the lengths, or positions, of the tripod legs. The sighting with the alidade and measuring are then carried out as in (b).

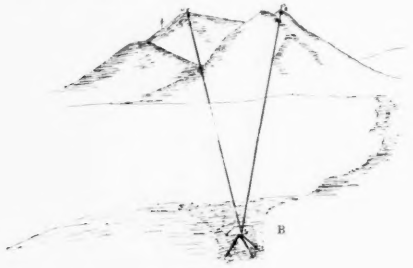


Fig. 8.

EXPERIMENT NO. 6. To find the law connecting the distance of the observer with the apparent size of an object.

(a.) Place a globe, or other object, at a distance equal to 20 or more times its diameter, from the home-made plane table described above, and draw lines on the sheet of paper pinned to the board directed toward the opposite ends of a diameter, and measure the angle between them with a protractor. Then remove the globe to twice the former distance (at B) from the table and measure the angle again, then to three times (at C) the distance, etc. Tabulate the distances in one column and the measured angle in an adjoining column. Can you discover the law connecting the distances and the measured angular diameters?

(b.) A very good crude transit can be made by graduating to degrees (or to any desired accuracy) the arc of a circle struck with a center at a point about half an inch from the middle of one edge of an inch oak board, planed smooth on one side and sawed to about two feet length. Bore a half-inch hole at the center of the arc, and cut out another board one foot square from inch stuff, and after surfacing it on one side, graduate it also to degrees about a point near (about $1\frac{1}{4}$ inches above one end) one corner. Screw an alidade arm pointed at one end, and carrying sharpened nails for sights, to this board at the center of graduation. Then cutting a spindle on the lower edge of the square board, so as to fit the hole in the first board, set the former so that it may swing freely about a line perpendicular to the latter board. The alidade being now free to swing about the screw at the lower corner, the measurement of vertical angles is made possible. To use the transit, set it on the top of the plane table described above, and level up as was suggested for the plane table.

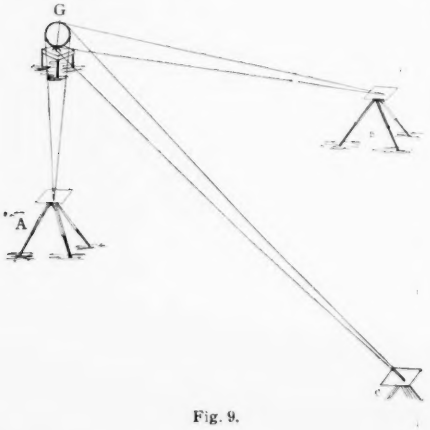


Fig. 9.

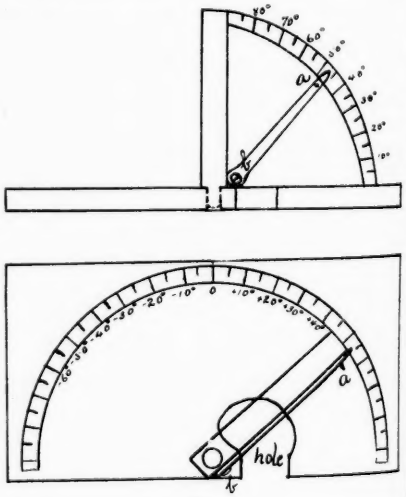


Fig. 10.

Execute this experiment with this transit.

EXPERIMENT NO. 7. To find the diameter of the moon, or sun.

(a.) Holding a graduated lead pencil at arm's length, place the thumb so that when the end of the pencil is in line with one crescent tip the thumb will be in line with the other tip. Note the distance from the thumb to the end of the lead pencil. Assuming the distance to the moon to be 238,000 miles, what is the moon's diameter?

[REMARK: The value of this method of executing the experiment is in showing on what the solution of the problem of finding the lunar diameter depends.]

(b.) The experiment may be performed more accurately with a stick placed at some twenty feet from the eye, the distance between the points on the stick where the lines of sight to the two crescent tips pass it being measured.

Fig. 11.

(c.) A movable sight carried along a scale fixed perpendicularly to a stick or rod some twenty feet long will give a still more accurate solution.

(d.) These measured values may be checked by the aid of Ephemeris' data, or with Sextant measures. A cheap wooden sextant can be bought of the Chicago Laboratory Supply Company.

(e.) These same experiments may be carried out for the sun by shielding the eyes with a pair of colored spectacles, or with the aid of smoked glass.

EXPERIMENT NO. 8. To determine the form of the earth's orbit.

(a.) Using the values of the solar diameter and of the differences of the sun's longitude for fifteen-day intervals, from the American Ephemeris (this book, which should be in the library of every High School where astronomy is taught, can be obtained from the Superintendent of the Nautical Almanac Office, Washington, D. C., by sending $1.00), plot the positions of the sun on lines drawn through a point (O) at angles (AOB, BOC, etc.) equal to the 15-day differences of longitude and at distances (OA, OB, OC, etc.) inversely proportional to the angular diameters.

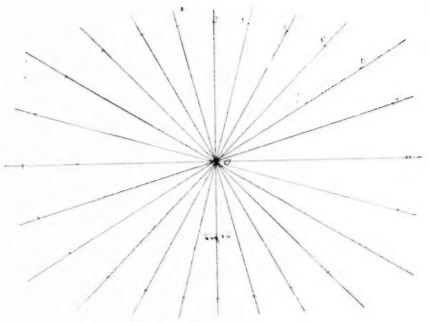


Fig. 12.

(b.) The same may be done for the moon, using two-day intervals.

EXPERIMENT NO. 9. To find rate and period of the moon's diurnal motion.

(a.) Stick a piece of lath, provided with a sight at the end, in the ground, and line in with the moon and this stick a second lath, pushing it into the ground firmly enough to hold it against the wind. Indicate on the second lath the point where the line to the moon passes it. A half-hour or an hour later line in a third lath and mark it as you did the second. Note and record the time to the nearest minute in each case. Stretch strings from the first to both the second and third laths, and transfer the angle between the strings to paper, and measure it, or measure the angle directly. Finally, find how long it will require the moon to pass through 360° at this same rate.

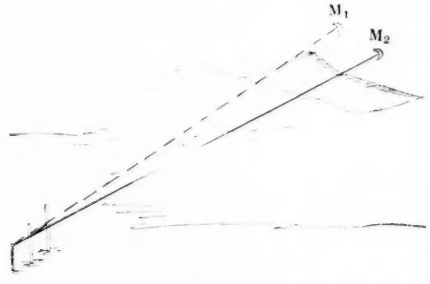


Fig. 13.

(b.) It will be readily seen that this experiment may also be performed with the home-made plane table.

EXPERIMENT NO. 10. To measure angles between objects (stars, planets, etc.) in the sky.

(a.) It will be readily seen that this may be

done crudely with the aid of the data of Experiment No. 2.

(b.) A cross-staff is recommended for this purpose also. This consists of a light stick four feet long, carrying a nail sight at one end (the eye end), and provided with another stick which is held at right angles to the first, and slides easily back and forth along it. The cross-stick should be supplied with three sights, one at either end, and a third in the middle. The cross-bar should be two feet long. The trigonometry class may graduate the long stick to correspond to various angles, and write the angles beside the graduation marks. The sights must be large enough to be seen in poor light. The method of using this instrument is obvious.

(c.) The experiment may also be performed with the sextant. It is a good exercise for the home-made sextant referred to under Experiment No. 7 (d).

EXPERIMENT NO. 11. Locate stars on a spherical blackboard from Ephemeris values of Right Ascension and Declination. (The Chicago Laboratory Supply Co. can furnish inexpensive globes for this purpose.)

EXPERIMENT NO. 12. Trace and learn the positions of the Celestial Equator and the Equinoctial Colure among the stars. A chart such as those of Upton's *Atlas*, or a planisphere, such as that of Poole Brothers, Chicago, or of Mary Proctor (William Beverly Harrison, 42 East Twentieth Street, New York,) will be helpful for this. The latter planisphere can be had of the publishers at the cost of about $1.00. The atlas costs about $1.50.

EXPERIMENT NO. 13. To find the rate of the moon's monthly motion.

(a.) Chart the position of the moon, some evening, with reference to any three bright stars near enough it to permit an estimate (with the aid of the hand as suggested in Experiment No. 2) of their distances from it to be made with some accuracy, and the selected stars should be bright enough to be identifiable on consecutive evenings. Write the estimated

Fig. 14.

distances from the moon to the various stars on the chart. Use a note book having a page large enough to admit of entering two or three evenings' obervations on the same page. Each observation must be dated to the nearest minute. Estimate as nearly as possible from your charts how far the moon has moved among the stars from the first to any subsequent observation, and from this compute the time of a complete revolution of the moon.

(b.) These same distances may be measured with a cross-staff, a sextant, or with sticks.

Query: Will this give the length of a sidereal or of a synodic month?

EXPERIMENT NO. 14. Identify the group of stars known as the Great Dipper, or the Great Bear; the Polestar, the Lesser Bear, and Queen Cassiopeia's Chair. The five brightest stars of the latter make a figure resembling a poor capital W.

(a.) Upton's *Atlas*, or Mary Proctor's planisphere will be helpful to any who may need help in this experiment. Note that the line of the two bright stars in the outer edge of the bowl, when prolonged upward about five times the distance which separates them, passes near an isolated bright star. This star is the Polestar, called Polaris, and the two Dipper stars are, from this accident of position, called the "pointers." The Pointers are about 5° apart and this may be used as a standard for estimating the angular distances between heavenly bodies.

[N. B.: The illustrations for these exercises were made by Mr. Roy Lippencott, a student of the Chicago Institute.]

Eleventh and Twelfth Grades

Latin, Eleventh Grade: (ALLEN W. GOULD.) In reading the orations against Catiline very little attempt was made to qualify the views of Cicero. The educational value of these orations consists largely in the fact that Cicero has succeeded in expressing in great literary masterpieces a most vivid idea of the duty a ruler owes to those he rules, as well as the duty each citizen owes to the city, and the wickedness of the man who raises his hand against his fatherland. The young people of to-day need to have these ideas as soon as their minds are capable of receiving them; and the splendid emphasis of Cicero's style with his uncompromising idealism, which may seem rather crude to us, may yet for that very reason be the best adapted to the minds of the growing boy and girl.

But the course of Roman history itself brings the necessary qualification to Cicero's views. This month the class will read some of Cicero's letters written in exile (Ad At. III, 3 and 5; Ad Fam. XIV, 4, 2, 1, 3; Ad Q. Frat. I, 3), and in that way will learn the story of the temporary success of "practical politics." The students will see that Cæsar, Pompey, and Crassus, by making a political "deal," could control the elections, and distribute the offices and the spoils among their followers. Much care will be needed to enable the students to hold fast to these ideals, while recognizing the real obstacles which prevented Cicero from carrying out his ideals—as similar obstacles still prevent men of to-day from living up to theirs, and thus give temporary success to political "deals."

To show the students how completely the government of reason and persuasion had broken down, the pupils will read in April the first sixteen chapters of the oration from Milo. In this way they can see that some strong hand must take the government if the Roman world would be saved from chaos, and they can thus appreciate the work of Cæsar. But the intellectual and spiritual stagnation of the Roman Empire will show the pupils that nations can grow only when they allow individuals to think for themselves.

References: Shuckburgh's *Letters of Cicero*, XXX–XCI; Shuckburgh's *History of Rome*, Ch. XLIII; Trollope's *Life of Cicero*, Vol. I, Ch. 12 and 13, Vol. II, Ch. 1; Forsyth's *Life of Cicero*, Ch. 10–12; Davidson's *Life of Cicero*, Ch. 7 and 8.

Mathematics, Eleventh and Twelfth Grades: (GEORGE W. MYERS.) The work in trigonometry in these grades has revealed many serious weaknesses in their knowledge of algebra and geometry. A thorough review of the principles of these two subjects is deemed imperative to further profitable progress in mathematics. The review will be begun with the solution, or an attempt at solution, of the exercises given on page 487 of the January COURSE OF STUDY. Most of the time for the rest of the year will be given to this review and to the applications of algebra, geometry, and plane trigonometry to practical problems. During March special attention will be given to algebra, the following topics being used as a guide:

I. Symbolism and fundamental operations applied to (a) Integral forms; (b) Fractional forms.

II. Principles involved in treating the Equation.

III. Study of elementary algebraic functions and of the principles of factoring.

IV. Principles for the reduction of fractions. Need and method for finding the Highest Common Factor and Lowest Common Multiple.

V. Principles relating to the Theory of Exponents, Radicals, and Logarithms.

VI. Application of Logarithms to Interest

and Discount, Annuities, and to the solution of Exponential Equations.

VII. Exercises in translating symbolical into verbal language, and *vice versa*.

VIII. Complete and Incomplete Quadratics. Conditions that roots shall be of one kind or another.

IX. Treatment of equations in two unknowns, whose solutions lead to Quadratics; Symmetric Equations.

X. Principles relating to Ratio; Proportion and Variation.

XI. Graphic representation of Complex Number.

XII. Discussion and use of Inequalities, and of Indeterminate forms; Clairaut's Problem.

Reference: Bradbury and Emery, *The Academic Algebra*.

General Geology, Eleventh Grade: (WALLACE W. ATWOOD.) In the study of the physiographic regions, already considered, it has been necessary to introduce most of the principles of structural and dynamic geology. Folds and faults have been analyzed, the phenomena of erosion and deposition studied, conformity and unconformity understood, the significance of basal conglomerates seen, and the methods for determining the relations of land and sea during any geologic period have been somewhat fully discussed.

The course is taught from a field standpoint. The practical methods which would be necessary in the field for working out the story of each region are always prominent. The problems set for home-work are field problems, such as the explanation of the loops and canoe-shaped areas among the Appalachian Mountains, the recurrence of the same formations at the surface, the narrow and wide outcrops in the field, etc.

The next regions to be considered are the Great Plains and the Black Hills. Facts from all available sources will be collected, and by interpreting these data the geological history is worked out. In the study of the Black Hills some attention will be given to the deposition and mining of ores. Laboratory work will be planned for the study of the common ores of iron, lead, copper, zinc, gold, silver, and tin.

Art Expression: Chalk-modeling of regions studied and of special scenic features of the regions. Water-colors and crayon will also be used in reproducing typical views.

References: United States Geological Reports; State-Geological Reports; text-books on Geology; National Geographic Society monographs, *Physiography of the United States*, Davis, *Physical Geography*; Irrigation Reports; Van Hise, *Some Principles Controlling the Deposition of Ores*, Trans. Am. Inst. of Mining Engineers, Vol. XXX.

Chemistry, Eleventh and Twelfth Grades: (ALICE P. NORTON.) The class, through their study of the leaf and fruit, have been introduced to a number of the most important elements, have studied their properties, and have learned something of their relations to one another. They have touched upon chemical theory in the study of the atom and molecule, have begun the writing of equations, and have solved some chemical problems. They have used both qualitative and quantitative methods in their analysis and have attained some degree of accuracy in their work.

The first work of next month will be the further analysis of the ash of the leaf. It has already been treated with distilled water, filtered, and the presence of sodium and potassium chloride in the filtrate shown. Several questions now present themselves. How can we further separate the substances remaining in the ash? Is there anything which will dissolve the material apparently insoluble in water? If it is really insoluble in water, how did it become a part of the plant? Can we in any way determine what substances to look for in the ash? The last question will lead us to an inquiry into the constituents of the soil, an investigation which will prove suggestive for future work in geology. The question of solubility will be seen to be a relative one; anything is

soluble in water provided we have water enough. The immense amount of water carried into the plant, and the minute quantity of mineral matter deposited at a time will be contrasted. The solvent power of acids will be shown by allowing the pupils to experiment on the solubility of various substances in water and in the different acids. The leaf ash will then be treated with hydrochloric acid, filtered, washed with water, and further treated with nitric acid. The residue, if any, will be carefully examined, and such tests made with it and with the filtrates as the study of the soil suggests.

To bring more clearly before the pupils the results obtained by their work, some of them will make charts showing the percentage composition of the leaf, and others will mount upon cardboard small weighing tubes containing the amounts found of water, carbon, ash, etc., in ten grams of fruit or leaf.

The last part of the month will be devoted to a review of the elements and compounds studied, in their relations to one another, with the especial object of unifying the work of the last two quarters.

French, Eleventh and Twelfth Grades: (Lorley Ada Ashléman.) The reading planned for these grades is Lamartine's *Graziella* and George Sand's *La Petite Fadette.*

A discussion on gender was initiated by the pupils during the past month. The following reading lesson embodies the questions of the children and the rules arrived at in response to them.

French Reading Lesson

Hélène. Ne trouvez-vous pas, mademoiselle, que le genre en français soit bien difficile? N'y a-t-il point de règles pour le masculin et le féminin des substantifs? Nous faut-il apprendre le genre de chaque substantif?

Mlle. Guinard. La pratique de la langue, la conversation, la lecture, voilà la meilleure règle que vous puissiez suivre. Pourtant je puis vous donner quelques règles qui vous aideront à reconnaître quelques substantifs masculins et quelques substantifs féminins.

Jean. Ayez la bonté de les écrire sur le tableau noir, afin que nous puissions les copier correctement.

Noms qui sont masculins:

1. Les noms des jours, des mois, des saisons: Le dimanche, un froid janvier, un printemps délicieux.

2. Les noms d' arbres et d' arbustes: Le chêne, le roseau.

Cependant aubépine, épine, vigne, ronce, yeuse sont du genre féminin.

3. Les noms des langues: le français, l'anglais, l'allemand, etc.

4. Les noms des couleurs: le rouge, le blanc, le bleu, etc.

5. Les noms des métaux: l'or, l'argent, le cuivre, le fer, etc.

6. Les noms de la nomenclature decimale, les poids, les mesures la monnaie: le gramme, le mètre, le franc, le centime.

7. Les mots pris substantivement, les noms qui désignent les choses abstraites: le blanc, le goûter, le dîner, le pourquoi, le oui, le non, le qu'en dera-t-on, le beau, le vilain, etc.

8. Les noms de pays, de villes et de rivières, quand ces noms sont terminés par une syllabe masculine: le Danemark, Le Mississipi, Paris, Lyon, Rouen, etc.

Noms qui sont feminins:

1. Les noms de pays, de villes et de rivières, quand ces noms sont terminés par une syllabe féminine: la France, la Seine, etc. Il y a cependant quelques exceptions, comme le Mexique, le Hanover, le Maine, le Rhône, le Danube, le Tibre, le Gange.

2. Les noms de fruits, de légumes et de fleurs, qui ont une terminaison féminine: la pomme, la carotte, la rose. Cependant, héliotrope est du genre masculin.

3. Les noms des vertus et de qualités: la charité, la modestie. Courage, mérite, égoïsme, vice, sont du genre masculin.

4. Les noms des fêtes.—Noël et carnaval sont du genre masculin.

5. Les noms des sciences: la physique, la chimie, la grammaire.

Robert. Je suis votre conseil, mademoiselle, je donne des leçons de français à mon petit frère. Mais, déjà mon élève m'a fait des questions auxquelles je ne puis répondre. Une chose qui m'ennuie beacoup, c'est non seulement le genre des substantifs mais la formation du féminin des adjectifs.

Mlle. Ah, Robert! l'enseignement de la langue française vous réserve encore bien des surprises. (*À Henri.*) Vous voulez m'adresser une question, Henri?

Henri. Oui, mademoiselle, vous nous avez dit il y a quelques semaines que l'article est omis après un adverbe négatif, un adverbe de quantité, et si l'adjectif précède le nom. Pourtant, vous venez de dire, "bien des surprises."

Mlle. Bravo Henri! votre remarque est bonne! Il y a toujours des exceptions, *l'adverbe bien* employé dans le sens de beaucoup prend l'article, mais avec l'adverbe *beaucoup*, vous dites "beaucoup de surprises."

Robert. Voulez-vous me permettre une interruption, mademoiselle? Je vous prie de m'expliquer quelquechose au sujet de l'adjectif. Je veux être à même de répondre à mon petit frère ce soir.

Mlle. Je suis contente de voir que vous insistiez sur ce sujet, il nous entraînera pourtant un peu loin. Jean, est-ce que l'adjectif s'accorde avec le nom en français?

Jean. Oui, mademoiselle. Avec un nom masculin singulier, l'adjectif est au masculin singulier; avec un nom féminin singulier, l'adjectif est au féminin singulier; avec un nom pluriel, l'adjectif est au pluriel; avec plusieurs noms au singulier, l'adjectif est au pluriel; au féminin pluriel si tous les noms sont féminins, au masculin pluriel si un des noms est au masculin.

Mlle. C'est parfaitement exact, Jean. Je n'aurais pas fait mieux! Robert, quelle lettre faut-il ajouter au masculin pour former le féminin?

Robert. La lettre *e*.

Mlle. C'est cela, faites moi donc une règle.

Robert. Pour former le féminin d'un adjectif, ajouter un *e* au masculin.

Henri. Mais, si l'adjectif est terminé par un *e*?

Mlle. Hélène, que feriez-vous dans ce cas?

Hélène. Je ne le changerai pas.

Mlle. Moi, non plus. Eh bien, Jean, que voulez-vous savoir?

Jean. Veuillez écrire les exceptions à la règle générale.

Mlle. Certainement.

1. Les adjectifs en *el, eil, en, on, et* doublent au féminin la consonne finale avant d'ajouter l'*e* muet: bon, bonne; muet, muette; cruel, cruelle; pareil, pareille.

Cependant les six adjectifs suivants terminés en *et*, et leurs composés, ont un seul *t* au féminin et prennent un accent grave sur l'*e*: complet, complète; concret, concrète; discret, discrète; inquiet, inquiète; replet, replète; secret, secrète.

2. Les adjectifs terminés en *f* changent *f* en *ve*: actif, active.

3. Les adjectifs terminés en *x* changent *x* en *se*: heureux, heureuse. Doux, roux, faux, font: douce, rousse, fausse au féminin.

4. Les adjectifs terminés en *eur* changent *eur* en *euse*: trompeur, trompeuse.

Exceptions:

(a) La plupart des adjectifs en *teur* font le féminin en *trice*: conducteur, conductrice.

(b) Enchanteur fait enchanteresse; pécheur fait pécheresse; vengeur fait vengeresse.

(c) Les adjectifs en *érieur*, comme antérieur, etc., et majeur, forment leur féminin d'après la règle générale, par l'addition d'un *e* muet.

5. Bas, gras, gros, las, sot, nul, gentil, épais, bellot, vieillot exprès doublent aussi la finale au féminin: basse, grasse, etc.

6. Beau, fou, mou, vieux, nouveau, font au féminin belle, folle, molle, vieille, nouvelle. (Au masculin, devant les mots commençant par une voyelle ou par un *h* muet, ces adjectifs font bel, fol, mol, vieil, nouvel; un bel arbre, un vieil homme.)

7. Masculin: bénin, malin, blanc, franc, sec, frais, public; féminin: bénigne, maligne, blanche, franche, sèche, fraîche, publique. Masculin: caduc, turc, grec, long, oblong, tiers, favori; féminin: caduque, turque, grecque, longue, oblongue, tierce, favorite; masculin: coi; féminin: coite.

8. Les adjectifs terminés en *gu* prennent un tréma sur l'*e* du féminin: aigu, aiguë.

History, Twelfth Grade: (EMILY J. RICE.) Subject: American History. As the necessity for the new Constitution has been shown in the previous month's work, the students are ready to trace the action of our first Congress under its provisions and the effect of such action upon the country. Let them realize as fully as possible the difficulties in the way of establishing our form of government. Picture clearly Federal Hall, the meeting of Congress, the most prominent individuals composing that body, and the ceremonies of Washington's inaugural. The immediate necessities of the country will show what action Congress must take, and reference to the Constitution itself will show its powers.

I. Discuss possible methods of raising money. Which will arouse least opposition? What means do we use now? What were tried then? With what result? What must be done with the money raised? Compare our present war debt with that of the Revolutionary War.

II. Show how people were divided in opinion as to the amount of power that should be given to Congress. Would it be well to have only one political party in our own time? Are there any likenesses between the theories of the political parties of our time and those of Washington's time? Let the students discuss the amount of power that a government should have.

III. Compare the conditions of government in France at that time and those in our own country. Give a vivid account of the storming of the Bastile, and tell something of the condition of different classes of society in France. [Story of LaFayette.] When war was declared by France and England in 1793, why did France count upon our aid? Let the students give arguments for and against giving them help. Trace the division of sentiment in the country on that question, and show that this division coincided in a general way with that on our financial policy. Trace Washington's difficulties in following a policy of neutrality; Génet's influence and English interference with our commerce. The anger of the people over Jay's treaty. Read Washington's arguments for neutrality in his *Farewell Address*. The children may give arguments for and against our mingling in foreign wars at the present time. Dangers of the departure from the so-called "Policy of the Fathers." The Philippine question will give point to this discussion.

References: McMaster, *History of the People of the United States*, Vol. I; Schouler, *History of the United States*, Vol. I; Hart, *Formation of the Union*; Frothingham, *Rise of the Republic*; Lodge, *Life of Washington*. *Washington's Farewell Address* will be found in full in the Old South Leaflets. *William Maclay's Diary* gives the best account of Washington's inauguration, and other accounts will be found in the Century for April, 1889, and in Harper's Magazine. For Washington's receptions, see *Library of American Literature*, Vol. IV, p. 346, and for anecdotes of Washington the same, Vol. IV, p. 25. For the story of *Hail, Columbia!* see McMaster, Vol. II, p. 376.

German, Twelfth Grade: (DR. BENIGNUS.) German continues to be correlated with history. The study for March will be the characteristic features of the American Constitution compared with those of the constitution of the German empire. The acquired knowledge will be reported verbally to strengthen oral expression, and in writing to develop style.

In literature, having shown during February the views of the Romantic School, and the service this school rendered to the spiritual life of Germany, the study in March will treat of the representatives of the older Romanticists: the forerunner and first lyric poet of this school, Novalis (Friedrich von Hardenberg); the founders and chiefs: Ludwig Tieck, the brothers August Wilhelm and Friedrich von Schlegel; the younger Romanticists: Clemens Brentano, Achim von Arnim; their influence upon the Grimm brothers, Jakob and Wilhelm, and upon Joseph Görres; the

lyric poets: Friedrich Freiherr de la Motte Fouqué, and Joseph Freiherr von Eichendorff. The other Romanticists will be studied in April. The interrelations of German and English literature will always be emphasized.

For memorizing, two poems of Eichendorff have been selected.

Meeresstille

Ich seh' von des Schiffes Rande
  Tief in die Flut hinein:
Gebirge und grüne Lande
  Und Trümmer im falben Schein
Und zackige Türme im Grunde,
  Wie ich's oft im Traum mir gedacht,
Das dämmert alles da unten
  Als wie eine prächtige Nacht.

Seekönig auf seiner Warte
  Sitzt in der Dämmrung tief,
Als ob er mit langem Barte
  Über seiner Harfe schlief;
Da kommen und gehen die Schiffe
  Vorüber, er merkt es kaum;
Von seinem Korallenriffe
  Grüsst er sie wie im Traum.

Joseph Freiherr von Eichendorff, 1788-1857.
"Romanzen."

Morgengebet

O wunderbares, tiefes Schweigen,
  Wie einsam ist's noch auf der Welt!
Die Wälder nur sich leise neigen,
  Als ging der Herr durchs stille Feld.

Ich fühl' mich recht wie neugeschaffen.
  Wo ist die Sorge nun und Not?
Was mich noch gestern wollt' erschlaffen,
  Ich schäm' mich des im Morgenrot.

Die Welt mit ihrem Gram und Glücke
  Will ich ein Pilger frohbereit
Betreten nur wie eine Brücke
  Zu dir, Herr, übern Strom der Zeit.

Und buhlt mein Lied, auf Weltgunst lauernd
  Um schnöden Sold der Eitelkeit:
Zerschlag' mein Saitenspiel, und schauernd
  Schweig ich vor dir in Ewigkeit.

"Geistliche Lieder."

Music: (Miss Goodrich.) High School and Ensemble Songs: *He shall give His Angels*, and *The Lord is my Shepherd*, from the collection of Seven Sentences, by Mrs. Crosby Adams; *Pussy Willow's Secret*, Songs of Life and Nature; *March, Come, Happy Spring, Springtime is Returning*, and *Prayer*, Modern Music Series, Third Book.

Morning Exercises

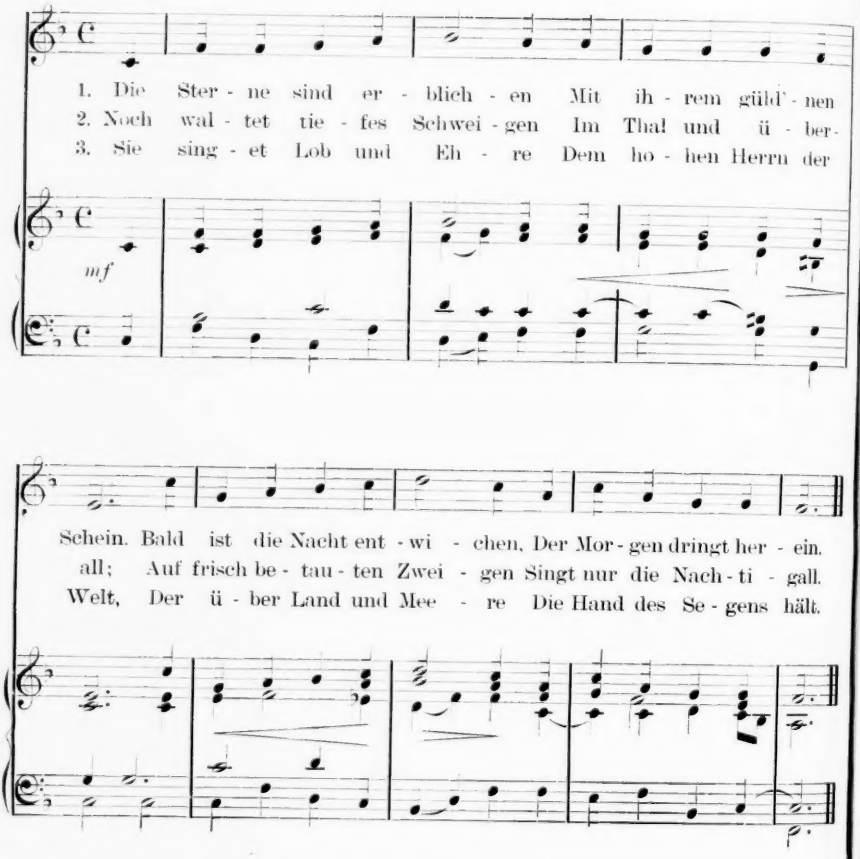
MARCH	SUBJECT	LEADER
1.	Nature's Awakening, in Middle English Verse	Miss Crawford.
5.	Street Scene in India	Mrs. Flint.
6.	The Eskimo	Mrs. Atwood.
7.	Dramatization—La Belle Nivernaise	Mlle. Ashléman.
8.	Current Events	Mr. Kroh.
12.	Quotations About Music	Miss Goodrich.
13.	Bridge Engineering	Mr. Carley.
14.	Fioretti di St. Francesco	Mr. Duncan.
15.	Current Events	Mrs. Thomsen.
19.	Ernest Seton-Thompson	Miss Champlin.
20.	A Visit to a Flour Mill	Mr. Bass.
21.	Count Rumford	Mrs. Norton.
22.	Current Events	Miss Cooke.

Historical Events and Birthdays

March	1	William Dean Howells	1837
"	6	Michael Angelo	1474
"	6	Gen. Philip Sheridan	1831
"	8	Austen H. Layard	1817
"	11	Torquato Tasso	1544
"	12	Thos. Buchanan Read	1822
"	15	Andrew Jackson	1767
"	16	James Madison	1751
"	18	John C. Calhoun	1782
"	19	David Livingston	1813
"	28	John Comenius	1592
"	29	Raphael	1483

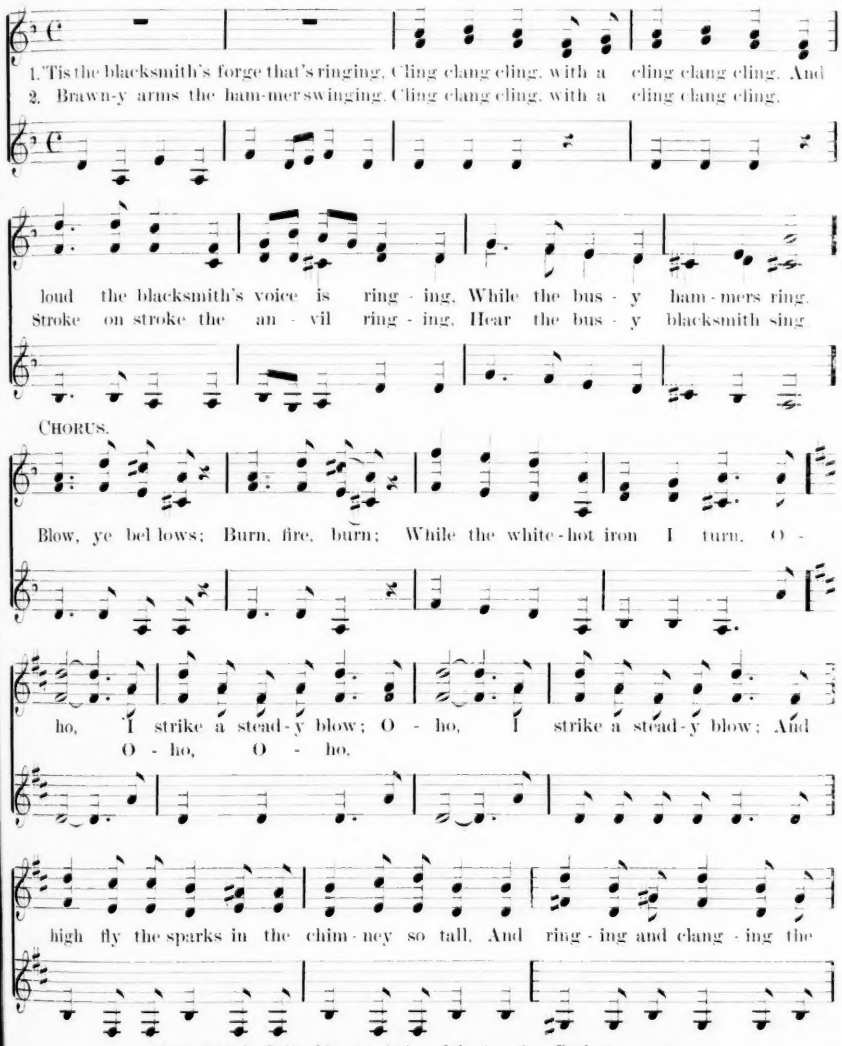
Morgenlied

HOFFMAN AUS FALLERSLEBEN, 1826. JOSEPH GERSBACH, 1821.


1. Die Ster - ne sind er - blich - en Mit ih - rem güld' - nen
2. Noch wal - tet tie - fes Schwei - gen Im Thal und ü - ber -
3. Sie sing - et Lob und Eh - re Dem ho - hen Herrn der
mf
Schein. Bald ist die Nacht ent - wi - chen, Der Mor - gen dringt her - ein.
all; Auf frisch be - tau - ten Zwei - gen Singt nur die Nach - ti - gall.
Welt, Der ü - ber Land und Mee - re Die Hand des Se - gens hält.

4 Er hat die Nacht vertrieben:
Ihr Kindlein, fürchtet nichts!
Stets kommt zu seinen Lieben
Der Vater alles Lichts.

The Forge*

Mrs. Alice C. D. Riley. From the Bohemian, by Mrs. Jessie L. Gaynor.

1. 'Tis the blacksmith's forge that's ringing, Cling clang cling, with a cling clang cling, And
2. Brawn-y arms the ham-mer swinging, Cling clang cling, with a cling clang cling,
loud the blacksmith's voice is ring - ing, While the bus - y ham - mers ring,
Stroke on stroke the an - vil ring - ing, Hear the bus - y blacksmith sing
Chorus.
Blow, ye bel lows; Burn, fire, burn; While the white-hot iron I turn, O -
ho, I strike a stead - y blow; O - ho, I strike a stead - y blow; And
O - ho, O - ho,
high fly the sparks in the chim - ney so tall, And ring - ing and clang - ing the

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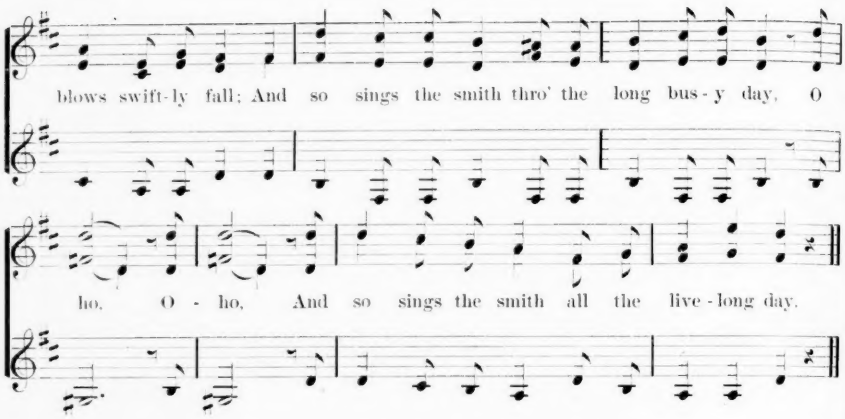
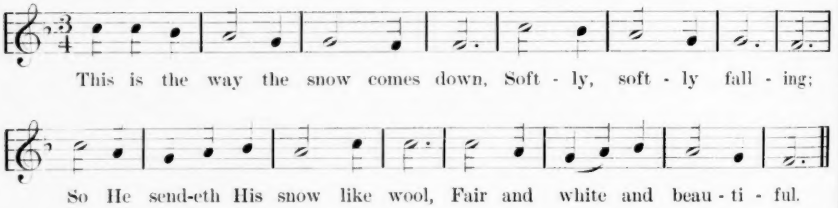


Original Work of Fourth Grade Pupils

No. 1



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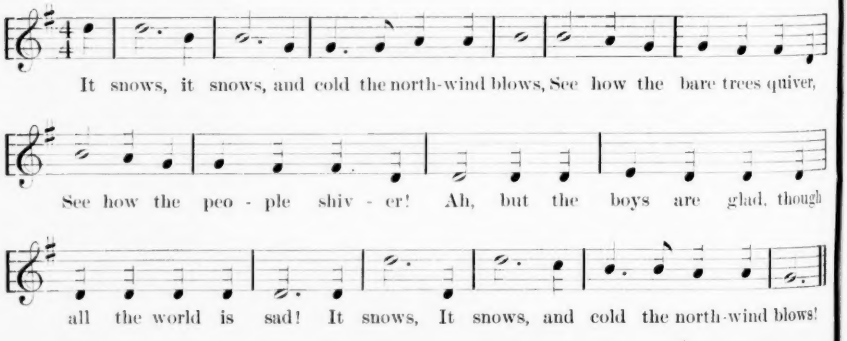
It snows, it snows, and cold the north-wind blows, See how the bare trees quiver,
See how the peo - ple shiv - er! Ah, but the boys are glad, though
all the world is sad! It snows, It snows, and cold the north-wind blows!